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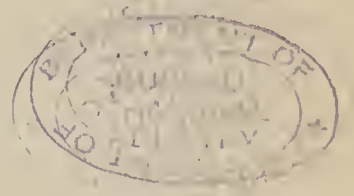
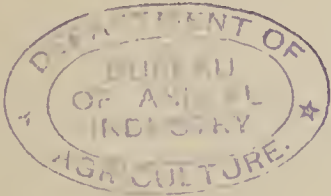


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AMERICAN
VETERINARY REVIEW.



EDITED AND PUBLISHED BY

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AMERICAN VETERINARY REVIEW,

APRIL, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 517, Vol. 6.)

QUITTOR.

SYNONYMS.—*Fesselgeschwür*, German; *giarda*, Italian; *giarlars*, Spanish; *javart*, French.

A name of unknown etymology, by which old hippiatrics designate various affections of the inferior regions of the legs of the horse, donkey and mule, and even of bovines. These possess the common character of a degeneration of a portion of the tissues, that is expelled by the efforts of nature under the form of a slough (*bourbillon*). There is a softening of the mortified structures, and an elimination by suppuration. In several old works these sloughs are called quitters, (*javart*) and this name has been extended to the disease itself.

This name having been preserved by use, notwithstanding the efforts of Vatel in opposition, we shall also employ it, and with Girard, recognize: 1st. The *simple* or *cutaneous* quitter, which is only the furuncle which occurs in the thickness of the dermoid structure nearest to the coronary band. 2d. The *tendinous* quitter, which greatly resembles the felon of man, where a portion of the sub-cutaneous cellular tissue, and of a tendon

sloughs out. 3d. The *sub-horny quittor*, the furuncle of the cuticula of the coronary band itself, the slough involving the superior portion of the laminated tissue. 4th. The *cartilaginous quittor*, or the limited caries of the lateral fibro-cartilage of the os pedis, and which old writers compounded with the horny quittor. We might join to those the furuncle of the frog, (see vol. 6, page 204). We believe it useless at present to enter upon a general consideration upon quittor, and will proceed to examine the pathological phenomena presented by each variety.

A.—**CUTANEOUS QUITTOR.**—This is a simple furuncle of the coronary region of the foot, in that part of the dermis nearest to the coronary band, having, however, a special character on account of the extraordinary thickness and inelasticity of the dermis of the region it occupies, the result being a kind of strangulation of the inflamed tissue beneath, and a very painful compression. It is through error that some authors have designated by the same name, the furuncle of the canon, of the fetlock, and of the coronet.

The hind feet are more subject to it than the fore, and it is more frequent at the heels, at the flexure of the fetlock, though it is also observed on the sides and front of the coronet, in which case it is much more painful. Cutaneous quittor has also been observed in bovines, where, however, as we shall see as we proceed, it is generally complicated with the tendinous variety, and becomes a true felon.

I.—*Symptoms.*—Cutaneous quittor is characterized by an inflammatory tumor or swelling, warm, painful, and tense, of the coronary region of the foot, the color of the skin being but little changed, if it is dark, but if the skin is light then the redness is well marked. This swelling is accompanied with a diffused œdema, extending to the fetlock, or even to the hock. We often find angeioleucites, or rather what we call leucophlegmasiæ. The lameness is generally extreme, and the animal frequently can scarcely rest on the diseased leg. The pain is sometimes so great as to induce general fever and loss of appetite, and the animal becomes dull and depressed. After acquiring certain dimensions the tumor shows a tendency to soften at its summit, its base, how-

ever, remaining hard for a considerable time. Rising more and more, it soon ulcerates at a point from which flows a small quantity of bloody pus, followed by the appearance of the slough, (*bourbillon*). An abscess is now formed in the tumor, which, as it opens, carries with it a portion of the skin, sometimes limited, at others measuring from four to ten centimeters, and there is a slough formed of the subcutaneous cellular tissue which separates by the suppuration with the portion of dead skin. This comes out by degrees. It is still adherent by its base and cannot be pulled out with the forceps unless by tearing and with acute pain, and this is often followed by slight hemorrhage. A few days later it will, however, become entirely loose, and in its place there will remain a cylindroid open cavity extending through the tumor, from its summit to its bottom, and from this a deep wound results, followed by a sero-bloody secretion, mingled with pus. As soon as the slough has taken place, or when it begins, the lameness subsides, as well as all the other phenomena of the pain. The wound heals up rapidly if there is no complication.

Cutaneous may easily be complicated with tendinous quittor if the disease or process of sloughing of the mortified tissues extends to the tendons or ligaments of the region involved. This complication is specially common in bovines, where cutaneous quittor generally gives rise to more swelling and greater suffering than the horse.

This quittor has quite a rapid progress, and may last from eight to fifteen days; very seldom longer. At times it seems to be a single furuncle; at other times there are several existing together. Often again, they come in succession, the first one treated being soon followed by others. This is said to take place principally when the diseased part remains exposed to the action of irritating substances, and relapses are prevented by protecting the part from the effects of these occasional causes.

II.—*Pathological Anatomy*.—It is an inflammation of the very abundant sub-cutaneous cellular tissue of the region, spreading from a starting point; the inflamed tissues are mortified and become gangrenous, and by a process of suppuration, the economy attempts to eliminate them. The slough represents more particu-

larly the inflamed cellular tissue, which is thickened, and which has become filamentous and hard and much impregnated with purulent serosity.

III.—*Etiology*.—Contusions of the region, bruises and punctured wounds are quite frequent causes of cutaneous quittor, but it may also take place without evidence of determining causes. Mud, manure, urine, all filth in which animals have to walk or remain, are also considered as causes. For this reason the disease is more common in the fall and winter, on account of the action of cold at times, and frozen mud. It is also more frequent in cities than in the country. Ray observes that the mud of cities is always more irritating and contains mineral substances, especially lime, alkalines and salts, and other substances. The gutters of some industrial establishments have also a direct irritating action. D'Arboval has observed that the mud of places where mineral springs exist is more irritating, as also are calcareous soils, where cutaneous quittor is more frequent than in any other. Common, large horses, notwithstanding their thick skins—or, rather on that account and on account of the hair which covers it—are more commonly affected than private horses. Towing horses are much more exposed to the disease than those otherwise employed.

IV.—*Treatment*.—As a first direction, during the course of the treatment it is always a prudent rule not to work the animal and to keep it in the stable, the feet being kept dry on a good bedding. An internal treatment is seldom necessary to control the general symptoms; if any is required, ordinary salines will generally be sufficient. It is necessary to assist the process of suppuration of the abscess by emollients, warm baths, poultices of flaxseed or of marshmallows, with melted lard, applied quite warm, or by the application of a mixture of honey and bran or flour. We have applied a coating of blister ointment to the tumor, covered with a warm poultice; the maturing effect is then very rapid. It is often necessary to lance the tumor to reduce the pain and prevent the mortification of a large piece of skin. This operation is recommended by D'Arboval and H. Bouley, and is specially indicated when the tumor is much developed. It is then important to incise in the entire thickness of the dermis

and to a sufficient length, and if necessary to make several parallel incisions which will give rise to a copious flow of blood. In this mode the parts are relieved, the pressure of the tumefaction is reduced and the gangrene diminished, if not entirely prevented. It is necessary—and we insist on this point—to incise so deeply that the tumefied skin is divided in its entire thickness. We have seen blacksmiths thus operate by the introduction of points of cauterization in the summit of the abscess; but this mode, though facilitating the sloughing of the strangulated part and reducing the compression, ought not to be preferred to the incision with a sharp instrument—cauterization is more painful.

When gangrene exists and the abscess is open, the incision is certainly less efficacious than at the outset, but it is not for that reason useless, as it relieves the pain and prevents excessive compression. We do not by it attempt to loosen the slough, which it is advantageous to have detaching loose itself when it holds only by its base. If the abscess, once formed, is slow to ulcerate, making a point of cauterization is a good way to stimulate the escape of the matter of the slough. This mode of opening produces in the part an increase of vital action and forms a sore of benign character, which falls off by the effect of the suppuration formed underneath, and which is nearly always followed by a comparatively speedy recovery. To obtain this radical cure it remains to continue the use of the ordinary means to facilitate suppuration and bring on resolution. If the wound is pale and covered at the bottom with large granulations, it must be dressed first with basilicon ointment and afterward with alcoholic liquids, as spirits of camphor, tincture of aloes, or simply an aromatic infusion; at times baths of sulphate of iron, with a little sulphate of copper, are indicated; or, when the wound has become red, the granulations vascular and of healthy character, a simple dressing of œgyptiacum ointment, diluted in vinegar, is enough. If proud flesh develops itself, it must be cut off. It is important to have the wound covered with a protecting dressing, which must be renewed daily if the suppuration is very abundant, or it may sometimes be left on for two days.

(To be continued.)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 536, Vol. 6.)

These are the chief symptoms when the tongue is the seat of the disease. The pimple-like excrescences are often only the size of a pin's head or a millet seed, but they are more frequently larger—from the size of a cherry to that of a walnut, or even greater. The inflammation (if any is present) and interstitial induration appear to proceed from the surface towards the centre, and the growth of the nodules takes place rapidly; and this is evidently proven from the circumstance attending their reappearance when they have been removed by operation. Mr. James has noticed this speedy reproduction, as in a letter to me he writes: "I am of opinion that most of the nodules or tubercles found in the substance of the tongue come to the surface at some time or other. For when treating such a tongue (as the one he first sent), we find sometimes that we have succeeded in curing the ulcers on the surface, but the next day or two we see a regular crop of ulcers and nodules on the surface again, and the poor animal protruding its tongue several inches from the mouth."

The appearance of the tongue, then, is characteristic of the affection, whether inspected while the animal is alive, or examined after death.

In the great majority of cases, there are perceived a more or less considerable number of prominences, on the dorsum most frequently, on one or both sides of the tongue, or over the whole of its surface; these look like nodules or tubercles, sometimes like warty excrescences flattened on the top, and vary in size from a millet-seed, a hemp-seed, or a pea, to that of a walnut; they may be single or in clusters. The tongue is enlarged, indurated, "lumpy," often more or less extensively ulcerated in one or more places; there is very considerable hypertrophy of the submucous and interstitial connective tissue; atrophy or degene-

*From the Veterinary Journal.

ration, more or less marked, of the muscular tissue; and the peculiar yellowish-white round nodules disseminated singly, or in masses throughout, each containing a cluster, or at least a tuft, of the *Actinomyces*. The gums, cheeks, palate or jaws may also be involved.

In addition to the description given of that first sent by Mr. James, as well as the second specimen, I will select that offered by Professor Putz,* veterinary teacher at the University of Halle, though many others might be given.

In February, 1882, Veterinary Surgeon Enke sent to the clinic of the school the tongue of a newly-slaughtered cow, which for a long time—at least six months—had eaten very little. An examination of this tongue was carefully made, and it presented the following appearances: Its posterior part was greatly swollen, and the dorsum extremely elevated; its anterior portion appeared to be normal. About three inches behind the tip were a number of irregular, sharply-defined, warty-looking elevations, which were scattered over the entire upper surface of the organ backwards. They were in size from that of a linseed to a hen's egg, the largest having broken through the mucous membrane, while the smaller ones could be felt as little irregular masses beneath it. The former resembled large, oval, and very much flattened warts, deprived of their epithelium. Their color was pale yellow, and their consistence soft and elastic. The largest of these was on the right side of the tongue, and was flat; it measured $4\frac{1}{2}$ centimeters long, 3 centimeters broad, and $2\frac{1}{2}$ centimeters high. Besides this growth, there were on the same side, towards the under part of the tongue, a great many nodules the size of a linseed, which could be felt beneath the mucous membrane. Large and small tumors of a similar character were found on the left side of the tongue. Above, on the arch of the dorsum, three large, well-defined cicatrices could be felt in the mucous membrane; these had a red appearance, and on their upper surface small irregularities could be felt rising, as it were, from the connective tissue beneath. The central cicatrix was in the

* Die Seuchen und Herdekrankheiten Unserer Hausthiere, Abtheilung 2, seite 599.

middle of the tongue, between the circumvallate papillæ; the others were on each side, towards the margin of the tongue, the left being the largest—12.90 centimeters long and 5.90 centimeters broad. In making a longitudinal section through the tongue, the tissues offered great resistance to the knife, and the cut surface exhibited an immense number of greyish and yellowish-white opaque nodules, imbedded in patches in the pale-red muscular tissue, many of them projecting beyond the level; their size was between that of a linseed and a florin. The largest of these patches was somewhat oval in form, and penetrated, in a stellate fashion, deeply into the tongue substance, as if following the course of the muscular fibres. The upper surface of the section was moderately moist, and studded with a number of millet-sized yellow nodules. The apex of the tongue was the only part of the organ free from these bodies. The weight of the fresh tongue was 2,430 grammes (5 lbs. 7 oz.). All the other parts of the cow, according to Enke, were healthy. Microscopical examination of the new formations or nodules proved them to be composed of masses or tufts of the *Actinomyces*, between the tufts being an abundance of lime salts. The tissue of the tumors had a kind of sarcomatous appearance, but there could be no doubt whatever as to the nature of the disease.

*Actinomykosis of the Bones of the Jaws.**

I have already given Bollinger's description of the disease, as it affects the bones of the jaws. Not unfrequently we have the tongue and jaw, or jaws, affected simultaneously or consecutively—generally the latter. The tumor which forms on or in the bone is apparently of a sarcomatous or fibro-sarcomatous character, according as the actinomykosis is periosteal or myeloid. It often commences in the alveoli of the jaw, and thence

* Gamgee (Dairy Stock) undoubtedly alludes to this affection, though he was unaware of its pathology. He writes: "In young cattle there is a somewhat frequent disease termed by some veterinary surgeons 'osteosarcoma,' 'spina-ventosa,' and other inappropriate names. The only term I can give it is fibro-plastic degeneration of bone. There is no recognized cause of the disease. It occurs most readily from two to five or six years of age, and affects steers in preference to bulls; the lower jaw is most frequently seized in the vicinity of

extends into the mouth and the cancellated tissue of the bone, and is accompanied by abscesses and fistulæ. In this situation it has been observed in the ox, pig, goat and dog.

Only one instance has been recorded in the dog—that by Professor Vachetta, of the Veterinary School at Pisa, and which was published this year under the heading of “Macrocellular osteo-condro-sarcoma, with actinomycosis.” About two months before the professor saw the dog a swelling appeared, without any assignable cause, upon the posterior half of the right branch of the lower jaw, and rapidly increased in volume. In about twenty days the tense skin became ulcerated, mastication was difficult, and the animal was then brought to the clinic of the school. The ulceration of the skin was now somewhat extensive, and in the centre of this was a small hole, into which a probe could only be introduced two or three millimeters. The tumor was hard as a stone at the margin of the dental alveoli, but became softer towards the lower border of the jaw. With the exception of the ulceration, the skin was otherwise healthy in the neighborhood. The tumor was not hot, neither did pressure upon it cause pain, but difficulty was evidently experienced in moving

the second or third molar teeth. Sometimes the upper jaw is implicated. . . . At a spot on the side of the face corresponding to the roots of the third or fourth grinder, above or below, a small, hot, circumscribed swelling occurs. The animal experiences no inconvenience from it, except when the part is struck or pressed upon. The tumor, however, grows, and pain increases. In some cases the growth is rapid, and in a few months the disease has invaded the larger part of one-half of the upper or lower jaw, and gives rise to severe symptoms, which arise chiefly from disturbed mastication, pain, and often from various cruel methods of treating the disease. The teeth become loose in their sockets, may be affected by caries, and drop out. Anaeker says that sometimes a fistula opens into the mouth. . . . It is evidently a morbid condition of the bony structure. On dissecting the skin off the tumor, we find it covered with tough, fibrous tissue, arranged in layers. The fibrous element diminishes towards the deeper parts of the growth, where at various parts *yellow accumulations of a friable, calcular or granular matter are enclosed in solid cavities*, surrounded by bony plates, or a tough, gristly tissue. M. Collignon, veterinary inspector of the slaughter-house of Montmartre (Paris), has observed the disease three times in three hundred oxen, and those he found affected came from the marshy plains of La Rochelle. In the plains of Ferrara, and in the Maremma of Tuscany, the disease is very frequent. Low-bred animals are most subject to it, and its origin is usually attributed to a blow.”

the jaw. The mouth was kept half open, and a little saliva flowed from it; the tongue was healthy, and nothing amiss was noticed on the left side or roof of the cavity. The fourth and fifth molars of the right side were pushed upwards by the growth of the tumor, and were a little separated from the adjoining teeth. The mucous membrane of the mouth was healthy, and the gums were not separated from the teeth. There was no swelling in the intermaxillary space, nor towards the neck. The jaw could be moved passively. The disease was diagnosed as osteo-sarcoma, probably complicated with mycloplaxy.

In view of the rapid growth of the tumor and the local and general condition of the animal, as well as the improbability of palliative, surgical or pharmaceutical measures being of any avail, resection of the diseased portion of the jaw was made, and though for some time the prospects of recovery were favorable, yet the dog ultimately succumbed rapidly.

The major portion of the tumor was hard and fibrous, and had a reddish-yellow tint at the inferior part, whitish elsewhere. At the lower curvature the neoplasm became suddenly and regularly lobulated, the connective tissue forming the interlobular spaces being continuous with that composing the envelope of the tumor as a whole. The inferior third of the section showed multitudes of yellow points, irregularly disseminated throughout; there were none in the upper part. The tumor and its fibrous envelope were very slightly vascular. When examined microscopically, the most important feature noted was the presence of numerous disseminated *Actinomyces* masses, especially towards the inferior part; they were only casually met with in the upper portion, while deeper in the tumor they were very definite in outline and enclosed in a kind of nucleus composed of apparently dead tissue. Many of these radiate fungi did not show the slightest trace of calcification, others were completely invaded by lime salts, and the nodules enclosing them had to be treated with hydrochloric or nitric acid before their contour could be well defined. The fungus appeared in two rather different forms, or rather aspects, which probably depended upon its stage of growth. Cut in the direction of the sarcomatous tissue, intermediate to the

necrobiotic focus, there were observed very numerous small discs composed of fine radiating filaments, one portion of which terminated in a rather dark, punctiform dilatation. These were more abundant in the peripheral tissue of the tumor, which appeared to contain the younger specimens, and of which there were only a few varieties. There was a more adult form, very often two discs together, in which the radiating filaments, starting from the central discs, were not so slender as in the other example, were of various lengths, and the punctiform dilatations at the end were also larger and more numerous. These dilatations, which may be considered conidia in process of maturation, were found in some preparations so developed as to look like true spores, and by their number and minute size they might readily become the active agents of dissemination, far and near, of the micromycetes in the tissues. The other form of *Actinomyces* was composed of a central irregular, or round disc, light yellow or olive tinted, and granular, from which proceeded rays much larger than in the preceding forms. In some of the specimens these rays were approximately equal in length, and altogether the *Actinomyces* did not look unlike the flower Marguerite. In other instances the length of the single filaments varied remarkably; while some of these projected only a short distance from the central disc, others extended in a direct or flexuous manner right into the surrounding necrobiotic elements. When by pressure the *Actinomyces* could be separated from each other into single filaments, and these were highly magnified, they were found to be flexible rods, each terminating in a lance-like bulging, or in an angular, single, bifurcated or trifurcated extremity, with a rounded apice. When yet more highly magnified, there was seen in the centre of each filament a fine axial line, either entire, broken, or in points or dots.

Vachetta terminates his observations by remarking that though the canine species has hitherto shown itself refractory to experimental inoculation, yet this instance proves that it may suffer from the accidental disease; that the fungus may present slight variations in form, not only in the different species of creatures in which it has been found (man, ox, pig, horse, and dog), but

also in individuals and in the different neoplasmata, as is shown by the representations given of it under these circumstances. He was doubtful as to the channel by which it found its way into the tissues—whether by an excoriation, ulceration, or fissure in the gums, or (which seemed more probable) rather by an ulcer or fistulous opening at the lower margin of the jaw.

Subsequent to the date of Bollinger's published observations, Johne had examined thirteen of these cases of myeloid actinomykosis of the jaw (presumably of cattle); ten of these were fresh specimens, and three were old specimens preserved in spirit. Eleven were of the lower jaw, one of the upper jaw, and only one of both jaws. All had evidently a central origin (*centralen ursprung*), though in some cases the disease may have commenced in the periosteal tissue. He describes cases of myeloid actinomykosis belonging to the former, and periosteal actinomykosis denoting the latter. He also mentions a case of fibrosarcoma of the lower jaw of an ox, in which the tumor was the size of two fists, round, fungous, and fibrous, and which arose from the alveolar periosteum of the middle incisors; it lay beneath the mucous membrane, and produced great thickening of the lip; another instance of fibrous tumor of the gum, apparently of new formation, the size of a hen's egg, which grew from the periosteum at the interior aspect of the junction of the two portions of the lower jaw, at the lower half of the alveolar border. The stroma of the tumor was three millimeters thick, and the mass, like that of the last tumor, contained "nests" (*nester*) of *Actinomyces*. He likewise alludes to an apparently fibrosarcomatous tumor on the margin of the gum of the lower jaw of a pig; a tumor [about the size of a pigeon's egg, involving the tongue, and springing directly from the periosteum on the upper surface of both branches of the jaw. In the more dense fibrous tissues, less in the spongy stroma, were many conglomerations of nodules the size of a millet-seed, containing the *Actinomyces* in clusters, many of which were calcified.

Actinomykosis of the Fauces.

The disease generally appears in this region in the form of submucous new formations, or polypi, which have been classed with

the lymphomata or lympho-sarcomata. They are round, fungous, or spongy tumors, covered by apparently normal mucous membrane. There are sometimes several in this situation. They present the same features, histologically, as the nodules in the tongue. Hitherto they have only been found in the ox. John describes one of these polypi obtained from the fauces of an ox, as about the size of a fist, round, fungous, and soft, covered by normal mucous membrane, rising from the right side of the cavity, a short distance behind the tonsil. On section, it showed five isolated, round, and generally fine spongy nodules, the size of a walnut. All of these contained conglomerated masses of the fungus.

The symptoms are generally difficulty in deglutition, and even in respiration, with cough, when the tumor is near the laryngeal opening. These tumors may also be the indirect cause of broncho-pneumonia, through their diverting the food into the air-passages. As has been said, tumors and abscesses are rather common in this cavity in the ox tribe.

Actinomykosis of the Nasal Chambers.

The only cases on record, so far as I can ascertain, are those described by Mr. James, and referred to at the commencement of this paper.

Actinomykosis of the Larynx.

Similar tumors to those observed in the fauces, are found in the region of the epiglottis and larynx. They are spongy in structure, and the characteristic nodules and *Actinomyces* tufts are contained in the fibrous meshes of their structure. In the region of the larynx, these formations cause more or less disturbance and difficulty in respiration.

(*To be continued.*)

ANTHRAX IN NEBRASKA.

BY W. A. THOMAS, B.V.M.

In answer to a telegram to investigate a disease that was raging in a herd of cattle, I went to Table Rock on Friday, February 23, 1883.

The herd of one hundred and nineteen consisted mostly of two

and three year old steers, with a few yearlings and cows. The greater part of the herd were fed hay and herded on cornstalks, receiving very good shelter in a thick grove along the bank of a creek, from which they drank. Milch cows and yearlings were kept on the opposite side of the creek and fed grain and hay regularly, with plenty of well water. The disease appeared in both parts of the herd.

Symptoms and Pathology.—The animal ceases feeding and ruminating, or partially so. In most cases they become excited and wild, eyes protruding and glaring, chasing pigs, chickens, other cattle; also men. The freaks of their frenzy are quite various—twitching the tail and ears as if bothered by flies, fighting, bellowing as if lost, frothing at the mouth, many lame in left hind leg, some weak in both hind legs, licking the legs; flatus passing the anus, though none were tympanitic; urine clear, in some cases seemed copious; fæces sometimes tinged with blood and usually of a dark brown color, otherwise generally of a normal consistency. This peculiar color is the first symptom noticed in some cases, in the morning when the herd is started up. During the day the animal isolates, is stupid and feeds but little. One treed a man, kept him there over an hour, and would bellow at him if he attempted to come down. One caught a chicken, hooked, tore and ate a part of it, which was afterward found in the rumen. One gored a tub in which water was placed for him; afterwards, he jumped out of the yard, ran to the herd, furiously fought some of them; when again separated a club was throw at him, upon which he pounced, horning and chewing it. A small number were not delirious, and presented but few abnormal symptoms. Pulse and temperature I could not obtain with satisfaction. The different stomachs and contents generally appeared normal. The omasum was sometimes impacted, dry and the mucous leaves easily torn. Portions of the intestines were congested and the mucous surface of a deep red color; liver somewhat softened; kidneys sometimes congested and darkened; portions of the spleen enlarged and the pulp softened, dark and disintegrated. The lungs were normal, though sometimes slightly mottled in the lower portions. In one case I found the muscular portion of the diaphragm very much hypertrophied; also a

large quantity of coagulated serum in the connective tissue on the surface. In some cases the whole abdominal viscera would be very much congested. I found bacilli in the blood. The spinal cord and its meninges appeared normal. There is a black deposit or discoloration of portions of the encephalic pia mater, with which I found myriads of spherical bacteria. At first they appear black, but, on focus, transparent; conjunctiva congested. The cattle were in good condition, though none were extra fat. They commenced dying about February 1st, and in a little over three weeks thirty were dead and others sick. Those that were not shot died in from three to nine days.

The owner of the cattle thought that the disease was hydrophobia, and caused from the bite of an old dog which was taken sick and died a short time ago. Hogs that he had bitten did not suffer any inconvenience afterward.

It seems to me that this outbreak nearly, or quite, evades all the theories as to the origin or cause of anthrax. It commenced when the temperature ran from zero to thirty degrees below. The ground was covered with snow, and had been for several weeks.

Beside a few sporadic cases, this is the third enzoötic outbreak of anthrax I have attended within eighteen months. The duration and symptoms of the disease and of cases in each outbreak are considerably different from either of the others.

Some authors have spoken of difficulty in finding the bacilli; also, that they are motionless. I have had no trouble in finding them, and many times in countless numbers, and they often move with great agility. I have kept specimens mounted two or three hours, during which time many would die, while large numbers gathered around the air bubbles, thus showing that they needed oxygen to maintain life.

I have taken blood from the diseased animals, kept it in a corked bottle and examined it daily. When first examined the bacteria are spherical. They increase in length from day to day, also segmenting. With a sixth objective, I have found a few that appeared to be fully two inches long. When the blood decomposes the bacilli cannot be found. I have reproduced the disease with blood that had been dry for nearly four months. I have

some dry blood over one year old, with which I am confident I can reproduce the disease.

Of the above mentioned herd, up to March 11th, forty-three head have died.

For treatment I only advised change of food and ground.

CLINICAL CHRONICLES.

BY A. LIAUTARD.

According to all writers on the subject of the operation of castration in the solipeds, almost every mode of operating presents its objections. While with one the rapidity of the manipulation will become the point sought for and adopted, others will prefer to it one which, though slower in its performance, will at the same time, be safer in its results. It is for this reason that the mode of castration by the clams is probably preferred on the continent to any other. With many the animal is thrown and secured in such a manner that but little fear of accident need be entertained. But many operators, principally on this continent, have adopted the *modus operandi* with the animal standing up. That position, and the section of the spermatic cord with a *rapid* application of the ecraseur, seems to be the adopted mode of most of those who are engaged in that department of veterinary surgery. It is not with the idea of discussing the advantages or objections of any of the modes in which the operation is performed, that we offer these few remarks, but in order to bring to the attention of the practitioner the fact that it seems that this mode of manipulation with the animal standing up and struggling more or less, more or less turning and pulling the cord, besides the possibility, almost unavoidable, of hemorrhage by the rapid division with the ecraseur—this mode of manipulation, we say, is explanatory of the common occurrence of schirrous cord, or champignon, in geldings in this country. In relation to this, we publish the report of a case of that disease, where the tumor was removed by the elastic ligature.

CHAMPIGNON OF THE LEFT SPERMATIC CORD—AMPUTATION WITH THE ELASTIC LIGATURE—RAPID RECOVERY.

BY AUSTIN PETERS, (Student).

On the 24th of October, 1882, was brought to the hospital of

the American Veterinary College, a brown gelding, six years old, with the following history: Castrated at the usual age; (when about two years old); about two weeks ago a swelling was noticed in the near inguinal region, which broke out and has remained open and discharging since. For some time past he has occasionally shown lameness in the right hind leg.

On examination the parts are found to be the seat of a tumor from four to six inches long, and two or three in diameter. It is well defined, and does not appear to extend upwards into the inguinal canal. It is quite hard, not particularly painful, and it shows posteriorly a small opening, from which pus is escaping. It is a simple intra-scrotal champignon, and it is deemed advisable to operate on him.

On the 27th the horse was thrown and secured for the operation. An incision was made on the tumor, and its covering dissected upwards on each side. Adherent downwards to the envelopes it is free superiorly, and attached to the extremity of the spermatic cord, which is somewhat thickened and enlarged. The ecraseur was placed above the tumor, round the cord, but as the pressure was becoming somewhat tight the instrument broke, and then several turns of elastic ligature were tightly placed round the cord, the ends of it left hanging outside of the wound, and the animal allowed to get up.

October 28th, but little reactive fever—a little anorexia. Adhesions between the tumor and the lips of the wound are detached with the finger.

October 29th.—Better condition, Appetite better; temperature, 101° ; parts somewhat swollen; tumor has a livid appearance, and is cool to the touch. Suppuration not very healthy; carbolic solution dressing.

October 31st.—The swelling of the parts has considerably increased; it extends down to the sheath and internal crural region. Tumor much shrunk in size and apparently nearly ready to slough off. Same treatment.

November 2d.—Everything normal. The tumor is sloughing off in pieces, only some small portions remaining attached close to the ligature.

November 4th.—The remainder of the tumor is cut off with the scissors, and the ligature removed.

November 7th, 8th, 9th.—Continues to improve. Walking exercise; the slough of the strings of the cord gradually coming off with the suppuration. Œdema of the parts is subsiding.

November 16th.—Discharged convalescent.

A probably rare affection met with in horses is the formation of abscesses in the pelvic cavity; and when this takes place the most common place where they are likely to open is either through the rectum, and again very commonly at the anus. When in the first case, the manure is often covered with blood or pus; and in the second, a small hole, the opening of the fistulous tract, is found on the margin of the anus, allowing a little flow of thin pus to escape. But there is also another mode in which these abscesses may find their way outside of the pelvic cavity, and where they can give rise to complications, which, if they are not necessarily serious, so far as the life of the patient is concerned, become somewhat of that character by the disfiguration they may leave after them. We refer to the possibility of the pus making its way under the coccygeal aponeurosis, and then producing numerous abscesses of the tail, and the loss of the hair of that appendage, and which might be complicated with disease of the caudal vertebræ, which would necessitate an amputation. The following case illustrates one of those complications, without necrosis of the bones.

PELVIC ABSCESS—MULTIPLE ABSCESES OF THE TAIL—LOSS OF THE HAIR IN ALMOST THE ENTIRE LENGTH OF THAT ORGAN.

By F. W. KAIN, (Student)

On November 3d, 1882, a chestnut gelding, coming six years old, belonging to Mr. E——, of this city, was brought to the hospital of the college. At this time he is said to have been very sensitive about his hinder parts, and will not allow himself to be touched in the region of the tail. A twitch being placed upon him, the house surgeon, Dr. Kemp, examined him and found a slight eruption underneath the skin, which was very irritating. Directions to have him well washed with soap and water were given

and the horse returned home. On the 6th of the same month, three days later, the animal manifested colicky symptoms. Dr. Kemp, who saw him, found him unable to pass his fæces, the rectum being filled with them, and the anus being somewhat swollen. A dose of physic was then given and nothing heard from him until the 11th, when he was sent to the hospital, to remain under treatment. On admission a number of fistulous openings are found round the anus, and under the sides of the tail. They allow the escape of a creamy looking pus, and communicate together, the pus having burrowed its way under the caudal aponeurosis. Upon pressure the pus escaped more or less tinged with blood. After pressing out the pus, the tail was washed out and dressed with carbolic solution and bandaged.

November 14th, a catheter introduced into one of the openings on one side of the anus extends into the pelvis for a distance of about fourteen inches. The discharge is quite abundant. Same treatment.

November 15th, two little abscesses are found on the upper part of the tail. The suppuration seems to diminish from the other openings.

November 18th.—Three other abscesses were found ready to be lanced, in the inferior portion of the tail. All these are dressed with carbolic solution. They communicate together, the injection passing readily from one to the other.

November 20th.—Another large collection on the upper part of the appendage.

November 21st.—The collection at the root of the tail seems more swollen, and gathering.

November 23d.—This has to be again freely opened by large incisions, running right across near the root.

November 26th and 27th.—Seems to be at last doing well. Suppuration diminishes. No new abscesses forming. The hair has fallen off from about two inches from the root of the organ, at places where the abscesses had formed.

November 29th.—The anus is more swollen again.

November 30th.—Rectal examination reveals a large swelling inside, on the left side of the pelvic cavity.

December 1st.—This abscess has ulcerated, and a long probe fails to reach the bottom. A free opening is made to allow the pus to escape.

December 3d.—Swelling less—discharge diminishing.

December 5th.—No more dressing with bandage is applied upon the tail; the wounds dressed with carbolic solution.

6th, 7th and 8th.—Continues to improve and is discharged
December 12th—all the abscesses healed, but the tail rough, crooked and deprived of hair, from about two inches from its root to its end—almost too short to allow amputation.

Luxations in our large domestic animals are not very common, with the exception of a few joints, unless they are accompanied with other lesions than those properly belonging to those affections. The powerful means of union of the articulations in horses, and the powerful support that some joints receive from the surrounding muscles, may account for this. There are, however, some joints where the practitioner may meet with the displacement of the articular surface, while again there are some where they are almost unknown. M. H. Bouley, in his article on luxation of the tarsal articulations, says in the twelfth volume of the *Dictionnaire Pratique de Medecine, Chirurgie et Hygiene Veterinaire*: "There is not, in veterinary surgery, a good observation of that luxation; in fact, it cannot be but a most exceptional accident, on account of the extreme solidity of the means of union and the deep adaptation of the articular surfaces. At any rate, if it takes place, it must necessarily be accompanied with fracture of the bony edges, laceration of skin, etc.—all lesions too serious to justify an attempt at treatment." We publish to-day, with all reserve, however, the report of an injury of that kind successfully treated, and in which the recovery took place within twenty-one days from the time of the accident.

COMPLETE LUXATION OF THE TIBIO-TARSAL ARTICULATION—RECOVERY.

BY W. H. WRAY, D.V.S.

On January 15th, 1883, about 4 P. M., a valuable team, the property of Hon. N. P. Otis, became frightened at some boys who

were coasting, and ran away down one of our steepest hills, bringing up very suddenly against a team harnessed to a large truck, which was backed up to the sidewalk, starting them and throwing Mr. Otis's near mare to the ground with great violence. I was called, but being out of town at the time, did not arrive until an hour after the accident occurred, and then found the mare with a complete luxation of the tibia and astragalus of the left hind leg, so that the tibia and the metatarsus formed a complete right angle, the left hoof extending out and anterior to the right hind leg. The mare was helped to the stable, about two blocks off, and thrown upon the right side on a bed of straw, at about 5:30 P. M., and ether being administered through the kindness of S. Hasbrouck, M.D., the flat rope was placed around her ankle and the hoof pulled upwards and outwards as far as possible, with one hand on the metatarsus and the other on the calcaneus. The joint was then twisted into place, with a grating sound, apparently with no pain to the patient. It was then placed in strong hickory splints, with linen bandages, and she was allowed to rise, which she did with very little help, and walked to her stall, a large box about fifteen feet away, put in slings and left alone until 9 P. M., when her temperature was 103° F., pulse 80, and respiration irregular and fast. Gave thirty minims of aconite B. P., and twenty minims every two hours after until 9 A. M. of the 16th, when her temperature had fallen to 101½° F., pulse 56, respiration regular and easy. Was fed two quarts of bran, with a quart of oats soaked in it, which she ate greedily. As there was some swelling, extending from the superior tibial region to the ankle, the bandages were replaced to accommodate it. Appetite excellent all day; at 9 P. M. temperature was 105½°, pulse 60.

January 17th, was a little uneasy through the night, but bore a little weight on the toe. Appetite good; temperature 101° F., pulse 48 at 9 A. M.

January 18th, temperature and pulse were normal, the mare standing on the leg long enough to use it a little. Bandages were removed, and leg fomented with hot water and hand rubbed about twenty minutes, when the bandages were replaced.

January 19th, gained more use of leg; began to flex the joint some. Fomentation continued, and swelling about gone.

January 20th, a movable splint, designed by S. Hasbrouck, M.D., was applied, so there was no lateral motion of the leg possible; was no change in the treatment until the 23d, when she was taken out of the slings and walked around the stable, which is quite a large one. Being replaced in the slings, this was continued until the 26th, when she was allowed to go loose in the stall. On the 27th the splint and bandages were removed, she took her exercise every day in the stable—about one-half hour at a time—until February 5th, when she was discharged, apparently as sound on this leg as any. Only a slight swelling of the tarsus remains, which was going down every day; was no stiffness or soreness on trotting.

PATHOLOGICAL PHYSIOLOGY.

CONTRIBUTION TO THE STUDY OF RABIES.

BY M. PAUL BERT.

The following experiments are reported by the author in relation to the researches of M. Pasteur upon that disease. He says:

1st.—I performed from a furious rabid to a healthy dog the reciprocal transfusion of the totality of the blood. The healthy dog, kept for nearly a year, presented no rabid symptoms. The general condition of the mad dog was so far improved that his life was prolonged about 48 hours.

2d.—I made researches to find out in which of the complex elements, which form the saliva of the mad dog, was the rabid virus. This saliva contains the parotid, maxillary and sublingual secretions, the buccal and broncho-pulmonary mucous. I then inoculated to series of dogs either the mucous taken from the bronchia or the produce of the salivary glands obtained by squeezing at the time the dog was destroyed, at the most furious period of hydrophobia.

Then, the salivary fluids never communicated the disease, while

that of the pulmonary mucosities produce it. There then is the rabid virus. This explains the variations of action in the saliva of mad dogs.

3d.—I have remarked that the saliva of mad dogs, if it does not give hydrophobia, brings on death in the inoculated animals, in producing serious local lesions, such as large cutaneous sloughs. These accidents prevented me going on with my experiments.

From fifteen inoculations I had seven suppurations, which proved fatal in four. It seems then that rabid animals possess in their tissues septic properties besides the hydrophobic condition.

4th.—The saliva of the mad dog filtrated on plaster proves harmless, while the part that remains on the filter gives rabies. It is then quite probable that rabies is due to a microbe.

5th.—The buccal saliva of the mad dog, like that of the healthy animal, transforms starch into glucose.—*Gazette Medicale*.

UPON HOG CHOLERA.

BY M. PASTEUR.

The following extract from a letter of the author upon that disease was presented to the Academy of Sciences of Paris:—"In my name and that of one of my colleague, Mr. Shuillier, I have the honor to briefly present you a few new facts relating to that disease of swine." * * * * * Our investigations are summarized in the following conclusions:

1.—That disease is produced by a special microbe, easily cultivated outside of the bodies of animals. It is so delicate that it may evade the most attentive observation. The microbe of chicken cholera resembles it the most. Its form is also that of a figure 8, but finer and less visible. It essentially differs from it in its physiological properties. Without action upon chickens, it kills rabbits and sheep.

2.—Inoculated pure to the pig, in almost inappreciable doses, it rapidly produces the disease, and kills with the habitual character of *spontaneous* cases. It is more fatal in improved breeding.

3.—Dr. Klein, in 1878, published a long work on the disease,

which he called pneumo-enteritis of swine. But he was entirely in error as to the nature and the properties of the parasite. As the microbe of cholera, he described a bacillus with spores larger than the bacteridie of anthrax. Very different from the true microbe of hog cholera, the bacillus of Dr. Klein has no relation with the etiology of the disease.

4.—After assuring ourselves, by direct experiments, that the disease does not recidivate, we have succeeded in inoculating it under a benign form, and then the animal becomes refractory to the deadly disease.

5.—Though we believe new experiments are still necessary to confirm our results, we are at present convinced that, from next spring, the vaccination of the attenuated, virulent microbe of hog cholera will become the great safeguard of hog-breeding establishments.—*Gazette Medicale*.

UPON RABIES.

By M. PASTEUR.

Mr. H. Bouley presented at the Academy of Medicine, in the name of the author, the result of his numerous investigations upon rabies. The conclusions are as follows:

1.—Dumb and raving rabies, more generally, all kinds of rabies, proceed from a common virus.

2.—Nothing varies more than the rabid symptoms; each case has, so to speak, its own, and it is almost certain that their characters depend upon the nature of the parts of the nervous system, encephalon or spinal marrow, where the virus is localized and developed.

3.—In the rabid saliva, the virus being associated with various microbes, the inoculation of that saliva may give rise to three kinds of death—by the microbe of the saliva, by the exaggerated development of the suppuration, by hydrophobia.

4.—The rachidian bulb of a person who has died with rabies, like that of any animal in the same condition, is always virulent.

5.—The rabid virus is found not only in the rachidian bulb, but also in all or some parts of the encephalon. It is also localized in the marrow, and often in every part of that organ.

As long as the encephalon or spinal marrow are not in a state of putrefaction, they are virulent.

6.—To produce rabies rapidly and with certainty, one must have recourse to inoculation, upon the surface of the brain, in the arachnoid cavity, by trephining. Inoculation of the pure virus in the circulatory apparatus shortens also the long duration of the incubation stage and appearance of the symptoms. By this method, so advantageous to the experimental study of the disease, rabies declares itself after six, eight or ten days.

7.—M. Pasteur and colleagues have met cases of spontaneous recovery from rabies after the appearance of the first rabid symptoms; never after that of the acute symptoms. They have also met with cases of disappearance of the first symptoms, with re-appearance of the disease after a long interval of time (two months). In these cases the acute symptoms were followed by death, as in ordinary cases.

8.—In one of their experiments upon three dogs, inoculated in 1881, two had died after developing a rapid rabies; the third recovered after having shown the first symptoms. Reinoculated in 1882 twice, by trephining, this dog remained healthy. Consequently, though it was mild in its symptoms, the disease did not recidivate. This is the first step in the discovery of the prophylaxy of rabies.

9.—Pasteur possesses now four dogs which cannot take rabies no matter how they may be inoculated, or how strong the virus may be. Dogs used as witnesses, inoculated at the same time, have all died with the disease.—*Academie de Medicine*.

PLEURO-PNEUMONIA IN CATTLE.

REPORT OF THE TREASURY CATTLE COMMISSION ON LUNG
PLAGUE, OR CONTAGIOUS PLEURO-PNEUMONIA, ETC.

SIR.—In accordance with the instructions furnished us, to “consult with the collectors of the ports of Portland, Boston, New York, Philadelphia, and Baltimore, with the view of securing appropriate sites and buildings as quarantine stations for im-

ported cattle," this commission first proceeded to visit and carefully examine the cattle quarantine station at Quebec, Canada. The premises there cover over fifty acres of land connected with Fort No. 2, on the bluff south of the Saint Lawrence, and were arranged to accommodate 700 head of cattle; yet we learn that they are proving inadequate and that they are being rapidly extended. At the time of our visit they contained 361 head of cattle, a considerable proportion of them being destined for the United States, and we have learned that the great majority of our western importers prefer to introduce their stock by way of Quebec, where the facilities for quarantine on the government premises save no little trouble and expense. Thus, much of the disbursement for maintenance and carriage which properly belong to the United States is monopolized by the Dominion.

We next visited the various American ports indicated, and made a thorough investigation of the sites available at each. It soon became manifest that with the means available it would be impossible, in almost any case, to secure premises at a practicable distance from the wharves, and having a water-front accessible for disembarkation in all weathers. Failing in this we sought to secure sites on the main lines of rail, so that cattle might be shipped in box cars at the wharves and unshipped directly on the quarantine grounds. After a careful observation of no less than sixty sites offered, we have secured such places for the ports of Portland, Boston, New York, and Baltimore, and the premises are now being prepared for the reception of stock. For New York and Baltimore these inland quarantine stations are in some respects preferable to those on the water front, since the lung plague prevails in these large cities and vicinity, and the cattle when released from quarantine in such a locality would still run some risk of infection; whereas, if detained ten or fifteen miles inland in a healthy country, they can, on the completion of quarantine, start for their destination with no risk whatever. One importation is already in quarantine in the selected quarantine site at Portland, and in a few weeks the other three sites will also be ready to receive cattle. The Philadelphia custom-house reports showed that there had been no importations

of cattle at that port since February, 1881, and consultation with Mr. Rowley, agent of the American line of steamers, and Messrs. Herkness, the principal Philadelphia cattle importers, elicited the fact that there is little probability of any new importations of this kind for some considerable time to come at that port. The regular steamship line to Philadelphia decline to carry cattle on their passenger steamers; it is only therefore, large importations, of one hundred head and upward, which will go far to pay for the use of a special steamer, which can be profitably brought to that port, and importers, resident even in the city of Philadelphia, prefer, in the present state of things, to import by way of New York or Baltimore. We have therefore ventured to advise the omission of Philadelphia from the list of quarantine stations until there shall be a certainty of an influx of foreign cattle at that point.

CONDITIONS REQUISITE TO SECURE THE ADMISSION OF AMERICAN
STORE CATTLE TO GREAT BRITAIN.

As stated in our report of last year, after the orders of the English Privy Council in 1879 for the slaughter at the ports of landing of all American cattle, and in consequence of it, this important branch of our live-stock industry suffered a yearly loss of two million dollars. This, however, was on fat cattle only, and makes no account of the traffic in lean American cattle, which, in the absence of the restrictions now imposed, would be sought in large numbers to be fattened on the pastures of Great Britain, nor of the shorthorns and other thoroughbred stock which were formerly exported in considerable numbers to England for breeding purposes. As the immediate result, therefore, of the application of the "slaughtering clause" to American cattle, the United States are now suffering a commercial yearly loss of between two and three millions of dollars, in addition to all the direct losses in disease, death, and incidentals consequent on the persistence of the scourge of lung plague among our home herds. *It is vain to hope that England will remove this restriction so long as we fail to show that the last vestige of the infection has been wiped out from our land.* England has had a far longer

and more bitter experience than we have with this most insidious and dangerous of all animal plagues, and we are safe in saying that no fair promises, no half-way measures, nor even the best devised protective measures or system of inspection, while the work of extinction of the pestilence is still incomplete, will ever move that country from her present position of excluding this pestilence by the slaughter of all cattle coming from infected lands or shake her conviction that this is the only certain method of maintaining an immunity. This conviction has been thoroughly wrought into the English mind by the loss of over four hundred million dollars from this plague alone in the first forty years of its prevalence on the island, by the recollection of herds decimated, by a widespread agricultural distress, by the passage in rapid succession of every cattle insurance company on the island through the bankruptcy court, by the infection of her dependency of Australia, where a million and a half of cattle perished in the first fifteen years, and where the scourge still prevails in spite of the most determined efforts to root it out. If anything further had been wanted to deepen this conviction it was furnished in the successive infection of her other colonies in South Africa, Tasmania, and New Zealand, where, as in Australia, the plague defied all control, and continues to prevail in consequence of the unfenced state of these countries and the constant mingling of the different herds. (For full particulars of these occurrences we beg to refer to our report of last year.)

Persons unacquainted with the nature of this plague and the disastrous experience of it through which Britain and the British Colonies have passed and are still passing, may cling to the belief that some lesser measure—*e. g.*, the examination of exported cattle, the export of cattle from uninfected ports only, the establishing of State cattle commissions with power to quarantine all infected herds reported to them or which they may discover, the appointment of veterinary inspectors of markets, the appointment of a federal cattle commission without power to force an entrance into suspected stables, or to properly dispose of infected herds, or some other measure short of the *accomplished stamping out of the disease*—shall woo from England an abolition of the Privy Council slaugh-

tering order, and secure the admission of American beeves and store cattle to the English markets on the same terms with the native. It is better far that every one, and above all every member of Congress, should face the truth, evident from the first to those acquainted with the malady, and now attested by four years of British restriction, that *nothing short of the absolute and undeniable extinction of this disease in the United States will reopen the British market to our live cattle, and save us those millions that we are now every year prodigally, and we might also say insanely, throwing away.*

IMPORTANCE OF THE EXTINCTION OF LUNG PLAGUE IN AMERICA TO
OUR HOME CATTLE INDUSTRY.

The continued existence of lung plague in America will sooner or later lead to the infection of our western herds—the source of our cattle traffic—and this will entail the speedy infection of all the channels of that traffic and of the country at large.

ACTIVITY OF CATTLE TRAFFIC FROM INFECTED DISTRICTS.

The cattle traffic from the infected regions in the eastern States to the west is more active and extensive than was that between the European continent and the British Isles at the time of the infection of Ireland in 1839; more than was that between England and Australia when the latter was infected in 1858; more than was that between Holland and South Africa when Cape Colony became infected in 1854; more than was that between Holland and Massachusetts when that commonwealth succumbed to the disease in 1859; and incomparably more than was that between England and New York when the germ of our present infection was brought from the mother country in 1848. The infection of Ireland and Massachusetts was effected in each case by the introduction of a limited number of Dutch cattle—four or five—while all the other states named were each infected by the arrival of a solitary animal, and at a time when no cattle traffic of any account was carried on between the countries involved. (See our last year's report, pages 9, 14, 17, 19 and 21.) The importations into these countries at the times referred to

were few indeed, and at long intervals, whereas with us, probably not a month passes without the shipment from one of our eastern infected cities of high-bred cattle for the west and south, while at intervals large sales are held at these infected cities and the stock scattered broadcast over the land. This traffic in thoroughbred cattle outward from our infected centers is thus on a far grander scale than it was into the various countries named when they were brought under the pestilence. Our risks are therefore, in this respect alone, far greater than were those of any one of these lands when the scourge was accidentally introduced into it.

TRAFFIC IN COMMON STORE-CATTLE FROM OUR INFECTED CENTRES.

But the above is far from completing the list of our perils. Every summer there is now carried on an active traffic in common native eastern calves, to be matured and fattened at the west. The magnitude of this traffic may be conceived when it is stated that through the market of Chicago alone there passed, in the fifteen months up to the end of August, 1881, store calves to the value of \$1,500,000. This has been interfered with somewhat by the prohibitory proclamation of the Governor of Illinois, and by the extensive losses occurring in this young stock, but the real dangers of the traffic have increased rather than lessened. Up to the year 1882 we had no positive proof that these store calves were sent west from the actually infected districts, though there was nothing to prevent their shipment. But the great drain established in the safer regions of Central New York and Pennsylvania and westward has so exhausted the supply in these regions, that young cattle rose in the past year to a prohibitory price, and the dealers were driven to the infected districts and markets to fill their contracts. Last year we urged (page 35 of our report) "that Congress enact such a measure as shall render impossible the infection of the west by the eastern store cattle." During the past year, in the absence of such a law, common young store cattle have been sent west from the infected market of Baltimore, and the infected districts around it, including at least one infected farm. They have also been sent out

from the infected market of Camden, N. J., to the extent, for a time, of one hundred head weekly, many of these going to the west. It is thus shown, by indisputable facts, that we are now in incomparably greater danger of the infection of our western and southern herds than was any one of the countries above named at the time of its infection. The immunity of our western herds, hitherto, has been an extraordinary piece of good fortune; but if this should continue, in the face of the present active and unrestricted movement of common store cattle outward from the infected eastern States, it will border on the miraculous.

EVIL EFFECTS OF INFECTION OF THE WEST—EXTENT OF PROSPECTIVE LOSSES.

To show the certain result of an infection at the source of our cattle traffic, and the inevitable general infection that must follow, it is only necessary to recall the yearly losses in England from lung plague—\$10,000,000—as compared with the bovine population, 6,000,000 head. At the same rate the United States, with our 30,000,000 head of cattle, would lose not less than \$50,000,000 per annum. The losses in Australia were in the same ratio—500,000 head per annum, out of a bovine population of 2,000,000 head. Those of South Africa were much higher, whole herds of 200 head and upwards often perishing without leaving a single survivor.

SUCH INFECTION IRREMEDIAL.

Nor is this the worst of the impending infection of the west and south. On the unfenced lands of the south and west this disease must prove as ineradicable as it has in the steppes of Asia and eastern Europe, on the fenceless mountains of central Europe, and on the plains of Australia, Tasmania, New Zealand, and South Africa. Once lung plague has been planted in Texas, or on the plains of Kansas and the west, it must, almost of necessity, defeat every effort to eradicate it. *No country* similarly situated has ever succeeded in rooting it out, and no hope would remain to us but in the entire extermination of the cattle on our unfenced lands (buffalo included.)

PRESENT AND PROSPECTIVE YEARLY LOSSES COMPARED WITH THE
AMOUNT REQUISITE TO STAMP OUT LUNG PLAGUE.

At this point we judge it well to expose, in bold tabular form, our present and prospective losses from lung plague, contrasted with the sum necessary to stamp out this plague (once for all) from the United States :

Present yearly losses from lung plague in the United States.		Sum required to stamp out lung plague in the United States.....	\$2,000,000
	\$2,000,000 to \$3,000,000		
Prospective yearly losses from lung plague.....	50,000,000	Cost of stamping out lung plague..	2,000,000
Capital represented by present yearly losses at 5 per cent.....		Capital required to stamp out lung plague.....	2,000,000
	\$40,000,000 to 60,000,000		
Capital represented by prospective yearly losses at 5 per cent.....		Capital required to stamp out lung plague.....	2,000,000
	\$1,000,000,000		

LEGISLATION NECESSARY TO SECURE THE EXTINCTION OF LUNG
PLAGUE IN AMERICA.

If anything more is needful to secure prompt and efficient legislation for the extinction of lung plague, it must be found in the evidence of all history, that every recorded occurrence of this plague which could be traced to its source has been traced to contagion alone ; that no new country was ever invaded where contagion was sufficiently guarded against ; and that no unwholesome condition of air, earth, water, food, housing, travel, privation or abuse of any kind has ever been shown to produce this disease in any locality into which the germs of contagion had not first been introduced from without. (See our last year's report, pages 4 to 30.)

Legislation for the extinction of lung plague will naturally divide itself into—

1st. *Measures to prevent the removal of cattle from an infected State, Territory or district into another State, Territory or district ; and*

2d. *Measures to discover and seclude all infected herds, and to promptly stamp out the infection.*

REGULATIONS FOR THE EXPORT OF CATTLE FROM AN INFECTED STATE,
TERRITORY OR DISTRICT.

Every possible consideration with regard to lung plague would require that no cattle shall be allowed to pass out of any

infected State, Territory or district, for store purposes, until they shall have been first certified sound by a quarantine of the requisite duration and stringency. Nothing could be more incongruous or inconsistent than the present condition of the United States law, or rather lack of law, on this subject. The Secretary of the Treasury has judiciously ordered that no cattle shall be imported from the infected countries of Europe, etc., without being submitted to a quarantine of ninety days. The fact that these cattle are all high-priced thoroughbreds, selected and transferred with especial care, and that they have already been subjected to the test of a ten days' ocean voyage, during which latent disease has had an opportunity to develop, in no degree detracts from the soundness of the position held by the Secretary of the Treasury on this matter. The disastrous and irremediable infection of Australia and South Africa was effected by just such thoroughbreds guarded by all these precautions, and subjected to the test of an ocean voyage of sixty to ninety days instead of ten, but without the additional safeguard of quarantine upon arrival. So it was also as regards quality, price and care in the case of the imports that infected Massachusetts and other countries before and since. In contrast with this unimpeachable position of the Secretary of the Treasury, guarding against infection by what is relatively a somewhat unlikely channel, we have absolutely no provision against the diffusion of lung plague from our own infected districts and markets through the unhampered sale of cattle that have been subjected to no especial care, that have been sent to market and will be removed from it in the common uncleansed cattle cars, that have been exposed in the market to thousands of chances of contagion through other stock, through places where other stock have preceded them, through yard attendants, drovers and butchers, and the only recommendation of which stock is, that they are live animals and can be bought at the cheapest and most remunerative rates. This low price, which so strongly recommends these cattle to the dealer, is probably the most dangerous characteristic of all, for no cattle are likely to be parted with so readily and cheaply as those that have been culled by the unfortunate owner from an infected herd and thrown upon the

market with the view of securing what salvage he can; yet our laws allow the removal of these eminently suspicious cattle from the infected markets of Baltimore, Philadelphia, Camden, Jersey City and New York, to whatever State or Territory the purchaser may elect. Numerous instances can be adduced in which infection has recently spread short distances from our large markets in this way, as from New York stock yards into the herd of Mr. Ross in Dutchess County (the first recorded infection of the county), into that of Mr. A. S. Baldwin in Putnam County, into those of Messrs. Hyde and Roach in Westchester County, and into those of the Seligs and Stoltee in Richmond County. These are but straws showing what is going on all the time from our infected markets, and with a disease like the lung plague, which may remain latent in the system of the infected animal for ninety to one hundred days, it would be just as easy to have the disease sent out from these markets to Terre Haute, Kansas City or Cheyenne. It will not be at all surprising if it shall prove that the plague has already been carried to the great cattle-growing regions of the west in some of the extensive shipments made last autumn. If such has really been the case, it may be expected to show itself along the lines of cattle traffic from the infected western center in the course of the coming year. Even in such a dreadful contingency it may still be possible to stamp it out, but only at a great increase of expense and at the cost of a much more serious interference with the cattle traffic, provided always that the pestilence has not yet reached our unfenced cattle ranges.

In view of the above, we beg to reiterate with greatly increased emphasis our recommendation of a year ago, that the *Federal Government shall forbid the movement of store cattle out of any infected State, Territory, or district, into any other State, Territory, or district, except after a quarantine such as is now imposed on the cattle imported from infected foreign countries.*

This prohibition would include New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and the District of Columbia, and should be drawn so that any other State found to be infected might be at once added to the list. (See our last year's report, pages 69 and 70.)

This it is, in our own opinion, clearly the duty of the Federal Government to do, because no such measure can be satisfactorily carried out by State authority alone. In the past, unscrupulous men have made a practice of smuggling infected and suspected cattle across State lines, and when once safely over, the authorities of the first State are powerless to follow and punish them. Similarly unprincipled dealers have driven such infected and suspected cattle into another State, sold them, pocketed the proceeds, and promptly returned across the boundary, leaving the unfortunate purchasers and State officials to deal with the resulting disease as best they could. Nothing can suppress such acts so well as the strong Federal arm, reaching over State lines, and dealing out impartial justice to all.

This prohibition of the movement of cattle out of an infected State is not only essential to the protection of adjacent States from the contagion, but is no less so to enable the officials of the infected States themselves to stamp out the plague within their borders. Between two adjacent States with a long stretch of unguarded frontier, it is impossible to prevent smuggling of suspected cattle without the power of punishing the transgressor wherever found. And so long as much smuggling from State to State is possible, the best suppressive work of the officials of one State must be perpetually marred and their sanitary achievements undone.

For further considerations on this topic, and for suggestions of means whereby sound cattle may be sent through infected States into other States, or for export, we beg leave to refer to our last year's report, pages 70 and 71.

LEGISLATION REQUISITE TO STAMP OUT THE LUNG PLAGUE IN A STATE OR DISTRICT.

The continued prevalence of lung plague in any locality is determined mainly, if not exclusively, by the free movement, interchange, and intermingling of cattle. The disease being the result of contagion alone, such mingling is essential to its propagation. Hence its permanence has been assured in all the large cities invaded, where intercourse between infected markets, dealers'

stables, and dairy herds is incessant; hence, too, it is far more likely to disappear, burnt out by its own fires, when located in country herds on inclosed farms, where no cattle are sold nor bought. (See our last year's report, pages 9-31.)

The *first requisite*, therefore, to the stamping out of the pestilence, is to prevent the commingling of fresh and susceptible cattle with those from infected herds. In other words, no store cattle should be allowed on a highway or exposed place in an infected district; and no two herds should be allowed to pasture on the same or adjacent fields in such infected district, without a special license granted after professional examination of the herd, and a certified history for the preceding six months showing an absence of changes, and, above all, of unexplained or suspicious changes in the *personnel* of the herd.

The *second requisite* is in keeping, namely: no market for store cattle should be allowed to admit any animals from infected districts.

These measures *assured*, the further conduct of the work is easy. The absence of these measures of control has been the grand reason of the comparative inefficiency of the work for the suppressing of lung plague in the different infected States, and of the continued prevalence of that pest after four years of effort. With these two measures efficiently applied in New York City in 1870, three months sufficed to circumscribe the disease to the last four herds, and as these were all known they should have been wiped out in a day; but the subsequent suspension of this control has permitted a renewal and general diffusion of the contagion. (See our last year's report, pages 64-68.)

Further measures are demanded as set forth in our report of last year, namely:

1st. To compel the slaughter of all cattle in public markets to which cattle from infected districts are freely admitted.

2d. To inspect all herds, abattoirs, rendering works, &c., in infected localities.

3d. To slaughter all cattle found suffering with lung plague, and even the whole exposed herd when found expedient.

4th. To indemnify the owners liberally for cattle thus slaughtered to prevent the maintenance and spread of the contagion.

5th. To secure the thorough disinfection of all infected animals, places and things.

6th. To enforce sufficient penalties on all transgressors of the cattle disease laws and orders.

Whether such measures can be constitutionally carried out by the Federal Government is not for us to say. We do not hesitate to state that in our large infected cities the control and restriction of the movement of cattle can only be effectively carried out with the energetic co-operation of the city police. Any authority, therefore, intrusted with this work should have the means of securing their earnest and unflagging assistance. On the other hand the history of the past four years in dealing with this plague, and the facts that no one State from New York southward, infected in 1878, can to-day claim to have stamped out the disease, and that no single large city infected at that time can to-day show a clean bill of health, show only too forcibly that the States must be furnished with a greater incentive to do efficient work than has actuated them in the past. We therefore reiterate our recommendations of last year, that in case Congress should decide that the Federal Government cannot interfere within States to carry out the measures above indicated, it should lose no time in appropriating \$1,500,000, to be disbursed by some designated officer of the government, to assist the different States in stamping out this disease, the money to be paid only on the approval of the methods and work by a Federal veterinary sanitary authority, to be created for this purpose.

As an additional argument for such a course, it may be stated that with the exception of New York, none of the infected States have made an appropriation at all adequate to the work to be done, and in some the legislatures are biennial, so that there is no means of applying an immediate remedy to this fundamental defect. Maryland has absolutely no appropriation, and the legislature does not meet until 1884; New York alone has an adequate sum, but it has been left in the treasury, rather than employed to secure effective work, and the limits of the disease have been extended rather than circumscribed.

The appropriation we recommend cannot be objected to on

the ground of excess, as we are now losing yearly by this disease nearly if not quite double the amount asked; and this yearly drain would be completely stopped in one year, or two at most, under the application of the measures proposed. Moreover, the neglect of this matter in the face of the growing trade in eastern calves and store cattle destined to the west, may any day increase our annual losses from units to tens of millions, and even pass it beyond the power of State or nation to eradicate.

NECESSITY FOR QUARANTINE OF IMPORTED RUMINANTS AND SWINE.

Without desiring to travel outside of our prescribed duty of advising on the lung plague of cattle, we do not feel justified in ignoring the danger of the possible introduction of rinderpest, apthous fever, &c., by other than bovine animals. The deadly plague of the Old World known by the German name of rinderpest, agrees with lung plague in being observed to occur only as the result of contagion, but differs from it in this important particular, that all ruminating animals and also peccaries are susceptible to it. Fortunately, with the exception of Angora and Cashmere goats, ruminants are not likely to be imported from countries where rinderpest at present prevails, save as objects of curiosity or for exhibition. Yet as this disastrous scourage might be imported with these animals, and as the importation of ruminants from the countries infected is so infrequent, the necessary precautions should be adopted, as they may be without any serious inconvenience. The countries where rinderpest prevails more or less constantly are Russia, Turkey, the whole of Asia, the East India Islands, and probably Japan. Apthous fever, imported into New York on the steamer *France* in 1881, by reason of the use on board ship of the halters which had been previously employed to tie infected European cattle, exists in most of the countries of Europe, and in Buenos Ayres, Australia, Tasmania, and New Zealand. Like rinderpest it attacks all ruminants, but unlike it, it affects readily all cloven-footed animals, and, much less readily, other animals.

To insure safety, therefore, from these two diseases, it is important that all ruminants and swine imported from any country outside of North America should be subjected to a quarantine of ten

days, and, together with all their appurtenances, should be subjected to a disinfection before release; also that all products of such animals capable of conveying infection should be made the object of prohibition or disinfection.

Seeing that sections 2493 and 2494 of the Revised Statutes do not authorize the Secretary of the Treasury and the President to make regulations under which these animals may be safely imported, we recommend that the attention of Congress should be called to the subject, and that this body should be requested to confer such power by special enactment. Such law should, however, be so drawn as to be applicable to any other danger of the same kind which may at any time threaten any class of our live stock. An extension of the sheep-pox in Europe or an importation of ovine animals from a new source may at any time threaten us with that deadly plague, and similar remarks apply to the extension of rinderpest into western Europe, to aphthous fever, to the quebra bunda of South America, to the horse sickness of South Africa, &c. We therefore recommend that Congress should empower the Secretary of the Treasury, with the consent of the President, whenever in their judgment it shall be necessary, to prohibit the importation of any specific class of animals, and any products of such animals, from any country at the time infected with a dangerous contagious disease, or in imminent danger of becoming so; or so to regulate the importation of such animals and their products as shall in their judgment be necessary for the protection of our native live stock.

We also recommend, in view of a contingency that may possibly arise under our present quarantine system, that Congress shall empower the Secretary of the Treasury to order the instant destruction and proper disposal of all cattle or other animals which during the period of their quarantine may manifest any dangerous contagious disease; together with all other animals detained in the same herd, unless when, in the case of the latter, they can be safely removed to a special quarantine ground, approved by the Treasury Cattle Commission, and detained there under such rigid supervision as the Commission shall prescribe, at the owner's expense.

The urgent need of such legislation must be manifest to all who will consider the great value of the cattle detained in the quarantine grounds, and the extreme danger of maintaining in these grounds, even for a day, a sick animal which is rapidly multiplying a disease-germ to which the other herds are susceptible. With the preservation of such sick animals the quarantine station becomes an infected place, and in case of the infection of other herds the responsibility must rest on the government, which has compulsorily detained them in close proximity. We trust that this matter may be brought before Congress as a provision rendered necessary by the existing quarantine.

Respectfully submitted.

JAMES LAW.

E. F. THAYER.

J. H. SANDERS.

Hon. CHARLES J. FOLGER,
Secretary of the Treasury.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The twentieth semi-annual meeting of this Association was held Tuesday, March 20, at Young's Hotel, Boston. There were assembled over thirty veterinarians, from the different Eastern and Middle States.

The session of Comitia Minora was a short one; the only business before it being the recommendation of candidates for admission to membership. In the general meeting, after reading of minutes, the first business was instructing the Secretary to have printed a number of copies of the Constitution and By-Laws.

The committee appointed to investigate the value of the Pasteur method of inoculation, reported that they could go no further until the arrival of fresh supplies of virus. It is expected that experiments with anthrax virus can be seen in progress at the next meeting of the Association, which will be held at the American Veterinary College, the third Tuesday in September.

The committees on education and intelligence, and diseases, will report at the annual meeting.

The following gentlemen were then admitted as members: Drs. J. H. Frinck, J. Hawkins, Andrew Sherk, A. F. Martin, L. M. Crane.

By different members the following gentlemen were proposed for membership: Drs. Sam'l K. Johnson, F. W. Huntington, W. H. Hoskins, R. Kay, W. C. Bretherton, W. D. Critcherson, Dr. Cotton, A. Peters, J. E. Gardner, Ed. A. McLellan, B. D. Pierce, F. E. Rice, Jos. Skally, Alex. Glass, Chas. T. Gaentner, W. H. Pendry, F. Hanshew.

Communications were then read from different members of the Association who were unable to attend. A letter was then read by Dr. Liantard from the President of the International Veterinary Congress, to be held this fall, in Brussels, praying that a delegate be sent to the congress from this Association. Prof. Liantard was appointed to act as said delegate. Dr. Liantard thanked the Association for this high honor, but begged for a short time in which to consider the matter, his acceptance or rejection to be placed in the hands of the Comitia Minora, which committee was delegated power to act for the Association.

"Papers and Discussion" being the next order of business—the first subject for discussion was spinal meningitis. This proved a very interesting topic—and opinions as to cause and treatment were expressed by most every one present.

President Williamson Bryden then reported a case of what he designated canker of the coronet, a case of about two years standing—the discharge being characterized by an extremely pungent foetid odor. This animal does daily work in the yards of a chemical establishment. Dr. Bryden further reported an instance of atrophy of the muscles of the right dorsal region as the result of the horse becoming cast.

Heredity came in for a free and spirited discussion.

Dr. Stickney then presented some very fine specimens of diseased bones of an aged pony. The question here was as to the exact nature of the disease. (This case deserves more mention than space at this time will permit, and we shall give the details in an early number of the REVIEW).

Somewhat similar cases of disease of bones were reported by Drs. Bryden, Miller, and Peabody.

Contagious abortion, as occurring in cattle, was discussed. Dr. Michener pointed out the necessity of making clear distinction between sporadic or accidental abortion, and the infectious or contagious form.

Dr. L. H. Howard reported a case of probable scarlatina in the horse. Some discussion followed on the resemblance of this affection to purpura.

The subject of spavin—its causes and treatment—brought many gentlemen into the discussion. The earnestness with which certain theories were advanced, defended, and disputed, showed pretty clearly that this is not a “mutual admiration” society, but one where a person must be reasonably certain of his ability to defend a theory, before he advances one.

The society adjourned to the banquet room, and after partaking to their fill from the sumptuous board, retired again to the discussion of subjects above reported.

A more extended account of these discussions will be forwarded at an early date.

CH. B. MICHENER, *Secy.*

NEW YORK STATE VETERINARY SOCIETY.

The annual meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday, March 13, 1883, at eight o'clock p.m., with the President in the chair.

The Secretary being absent, Dr. F. Saunders acted as Secretary *pro tem.*

The following gentlemen responded to the roll-call; Drs. Liantard, Coates, Crane, L. McLean, Burden, Devoe, Dixon and Saunders.

The minutes of the last meeting were read and approved.

The next order of business being the reading of papers and discussion; the essayist of the evening being unavoidably absent, the Society proceeded to the regular order of business.

A communication was read from Dr. Foote, regretting his inability to attend the regular monthly meetings hereafter, and tendering his resignation as Secretary, which was accepted.

A telegram was received from Dr. Michener, stating the cause of his absence, being called out of the city.

The Secretary's report for the past year was read and accepted; since his duties as Secretary of the Society from January, 1882, there has been held thirteen monthly and two special meetings of the old and new societies, the average attendance being eleven members.

A paper has been read at each meeting, and full reports of the meetings, papers and discussions, have been published in the *AMERICAN VETERINARY REVIEW* each month.

The meetings have been called promptly at eight o'clock in the evening, and a quorum has in no case been wanting.

The Treasurer's report was read and accepted, showing a balance on hand of ninety-eight dollars and seventy-five cents.

The report of chairman of committee on prize awarded to the student of the graduating class of the American Veterinary College who shall pass the best practical examination before said committee, stated that ten students presented themselves for examination, and before it was completed three withdrew. The examination was thoroughly practical, and the entire number showed a well founded basis of practical knowledge. Dr. Rich'd Kay was the choice of each member of the committee. The report was accepted and committee discharged with thanks.

Dr. Coates proposed for membership the names of Drs. Theo. Outerbridge, Rich'd Kay and W. D. Critcherson, all of this city; and Dr. Dixon proposed E. Burget of this city, all of which were referred to committee on membership.

The election of officers of the Society for the coming year resulted as follows: Dr. A. F. Liantard, President; Drs. Michener and Coates, Vice-Presidents; Dr. W. S. Devoe, Secretary; and Drs. A. Lockhart, C. Burden, L. McLean, Jas. L. Robertson and C. B. Michener as Board of Censors.

Dr. Liantard thanked the members for re-election, and spoke of the good results of the meetings of the past, and expressed the hope that the ensuing year will show greater results.

The newly-elected Secretary assumed the duties of his office, and the Society proceeded to new business.

Dr. McLean made a motion, which was seconded by Dr. Coates, that the Secretary be directed to send the sum of twenty-five dollars to the "Fleming Testimonial Fund" as a mark of approbation and appreciation for the efforts of George Fleming in raising the standing of the veterinary profession.

The Chair re-appointed Dr. Michener to read an essay at the next regular meeting, to be held Tuesday, April 10, 1883, at eight o'clock p.m.

The Society then adjourned.

DR. S. DEVOE, *Secy.*

CORRESPONDENCE.

NEW VETERINARY MEDICAL ASSOCIATION.

PHILADELPHIA, PA., February 26, 1883.

Editor of the REVIEW:

For the advancement of the many interests of the veterinary profession, the surgeons of Philadelphia and surrounding towns, have formed the Keystone Veterinary Medical Association, with the following roll of officers: President, Dr. W. B. Miller, Camden, N. J.; Vice-President, Dr. W. L. Zuill, Phila.; Secretary and Treasurer, Dr. A. A. Grange, Phila., who has since offered his resignation to accept a position in the faculty of the new veterinary school at Minneapolis, Minn. At a second meeting his resignation was accepted and Dr. W. Horace Hoskins, Phila., was chosen to fill the offices jointly. The requirements for membership permit those to become members who are graduates of recognized veterinary and medical schools. The society purposes holding monthly meetings for the reading of papers, reports of cases and discussions of the same. At the meeting on Dec. 2d, Dr. Hoskins read, as an opening essay, a paper, entitled "The Need, Use and Work of a Veterinary Society." The writer's views were warmly received, and the outlook for a permanent and valuable association to the profession, is very bright. An invitation is here extended to any veterinary graduate to become a member, who is located in or near our city.

W. HORACE HOSKINS, *Secy.*

ON POLYPI.

LOST RIVER, W. Va., Feb. 15, 1883.

Prof. Liautard :

In the summer of 1870, I had a severe attack of eczema on my arm. Shortly afterwards a polypus began to grow in my right nostril very near the cavity leading into the head. Several regular physicians prescribed for the eczema without effect. They also removed the polypus, once by ligature, and twice with forceps, without cure. Some time afterward a then recent graduate prescribed for the eczema:—carbolic acid, 3 vi; glycerine, 3 iii; aqua, 3 iv. This effected a speedy cure. Being intensely worried with the polypus, I concluded to try the same prescription upon it. I applied it twice a day with the end of my finger. In two weeks it reduced the polypus to a hard shriveled lump, which I then twisted out by the simple use of my forefinger. It has not since returned. Upon my recommendation two similar cases have been effectually treated with the same prescription.

A little more than a year since a similas polypus formed in the nose of a thoroughbred short-horn heifer of mine, and became so large, before I was aware of its existence, that it seemed to close the nostril. I took one ounce of officinal solution of carbolic acid, and added to it three ounces of water, and applied it twice a day for eighteen days and then twisted out the dried up remains. It has not since returned.

Very truly yours,

J. WARD WOOD.

NEWS AND SUNDRIES.

GLANDERS IN MAN.—A stable man in Chicago is said to have died from glanders contracted from a horse.

TUBERCLE ANTIDOTE.—M. de Korab asserts that he has found the employment of helenine to be inimical to the development of the bacilli of tuberculosis.—*W. Med. Reporter.*

SWINE CENSUS.—In 1882 Ohio had 1,624,097 hogs, while in

1878 she had 2,139,910 head. The loss is due wholly to contagious diseases among swine of that State.—*Prairie Farmer*.

PROLIFIC COW.—A cow, the property of a Mr. Hume, of Colfax Co., Nebraska, recently gave birth to three fine heifer calves, all of which are healthy and doing well.—*Prairie Farmer*.

OSTRICH FARMING.—The recently imported ostriches that were taken to California, are still in Woodward's Gardens, a suburban resort. Suitable land has been secured and the birds will soon be removed to it. One bird has already gone to laying.

REMARKABLE FECUNDITY.—An English paper cites the remarkable fecundity of a ten-year-old ewe in Pembrokehire, the animal having reared four lambs each year for three years, and three lambs each year for the remainder of her maternal life—resulting in a total of thirty-four lambs.—*Breeders' Gazette*.

INFLUENZA.—A virulent phase of influenza is prevalent among the horses in the northern and midland counties of England. The disease is so infectious that it may be contracted by a horse at a drinking trough previously visited by a diseased animal. The disease has also broken out in Bristol, where six deaths are reported in one stable and seven in another, through the epidemic.—*Turf, Field and Farm*.

PROBABLE STRANGLES.—Of all horse diseases infesting various sections of the country, the disease now prevalent in Fargo, Dak., is the worst. The first symptom is a slight swelling under the jaw, which in a short time causes the animal to struggle for breath, and in a few days, to choke to death. Neither fomentations nor outward applications seem to have the least effect.—*Turf, Field and Farm*.

A PONY FARM IN TEXAS.—A Texas exchange describes an 8,000 acre ranch in that State, as entirely devoted to the breeding of ponies. The stock consists of seven Shetland stallions and forty-five Shetland mares, all pure bred, and 200 small spotted pony mares. The lilliputians range over the prairies like sheep and are as gentle as possible. The expenses foot up very little more than a sheep farm the same size, and the profits are more than twice as much.—*Turf, Field and Farm*.

SUPERFETATION.—A correspondent of the *Country Gentleman* recently reported a case of a Jersey heifer which produced two perfectly developed calves within five months. It is, most likely, safe to say that this heifer conceived while being pregnant. Such occurrences are rare, though they have been observed in the human family as well. Where the uterus is "double," the explanation is easy. In this and similar cases, there must have remained an open passage, through which the spermatozoa reached the ovum.

PLEURO-PNEUMONIA.—The Northwestern Dairymen's Association, which recently met in Mankato, Minn., closed its proceedings by the passage of a resolution calling upon Congress to at once enact effective and stringent laws, and make an ample appropriation to stamp out, as soon as possible, every trace of pleuropneumonia, and by a rigid system of quarantine render its importation impossible. Owners of herds must act together in this matter, and demand efficient protection.—*American Cultivator*.

LARGE JERSEY HEIFER.—I have what I think a somewhat remarkable Jersey heifer calf, not yet ten months old, having seven fully-developed teats, and a very broad and clearly-defined esentcheon. She is fawn color, with black points, and measures 5 feet 2 inches from roots of horn to root of tail, and girths 5 feet 7 inches. For a pure blood Jersey, I consider that quite an unusual size, having had no grain whatever. This calf was in heat before she was three months old, and has been in same condition several times since, but I have thought best not to have her served under twelve months old.—*Country Gentleman*.

INTERNATIONAL EXHIBITION.—An international exhibition of a novel character is projected to be held in Paris next autumn, under the auspices of the Société Protectrice des Animaux. The catalogue is to include all apparatus, furniture, &c., connected with the breaking and use of horses. It is possible that the exhibition may become extended so as to embrace appliances employed in the relations of mankind with other animals. The Corporation of Paris have granted the use of the Pavilion in the Champs Elysées for the month of September next for the exhibi-

tion. The society referred to, which has been established over 30 years, now numbers some 6,000 members, and thanks to its efforts in few countries is more done than in France for protection of the animal world.—*New York Sun*.

WOOLY BULL.—Barnum's wooly horse is outdone by a wooly bull in Clinton Co., Ill., of which a story is current among credulous persons. It is to the effect that this wooly bull is a cross of a Cotswold ram on a heifer; it is now two years old and has been used to cross several heifers, which are expected to produce wooly calves. This is a great improvement, and as the saying goes, "is important if true." For a dairy cow that will yield a fleece of fine wool two inches long, give a mess of milk and reproduce her kind once a year, will be a very profitable animal, with a fleece of about 100 pounds of wool, a butter record of 700 or 800 pounds of butter, and in time a good pedigree, such an animal should sell judging by the prices of the Jerseys, at \$25,000! —*Rural New Yorker*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Revue für Thierheilkunde und Thierzucht*, *Clinica Veterinaria*, *Veterinarian*, *Veterinary Journal*, *Gazette Medicale*, *Archives Veterinaires*, *Recueil de Medecine Veterinaire*, *Journal de Zoötechnie*, *Revue d'Hygiene*.

HOME.—*American Farmer*, *Spirit of the Times*, *Turf, Field and Farm*, *American Agriculturist*, *Country Gentleman*, *Rural New Yorker*, *Ohio Farmer*, *Breeders' Gazette*, *National Live Stock Journal*, *Medical Record*.

NEWSPAPERS.—*Farmers' Review*, *Western Medical Reporter*, *Prairie Farmer*, *Medical Herald*, *Home Farm*.

PAMPHLETS.—*An Investigation into the Parasites of the Pork Supply of Montreal*, by W. Osler, M.D., M.R.C.P., London; *On Canadian Fresh Water Polyzoa*, by the same; *On Certain Parasites in the Blood of the Frog*, by the same.

BOOKS.—*Nouveau Dictionnaire de Medecine, de Chirurgie et d'Hygiene Veteranaire*, by H. Bouley and others, vol. 12. *Report of the Department of Agriculture*.

COMMUNICATIONS.—W. Devoe, H. W. Hoskins, W. Wray, H. T. Foote, A. A. Holcombe, W. A. Thomas.

AMERICAN VETERINARY REVIEW,

MAY, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 5.)

TENDINOUS QUITTOR.—**SYNONYMS.**—*Hornwurne* (German).—It is the nervous quittor of hippiatres, and the analogue of the felon of man. It is again a furuncle, different from the preceding, only because instead of being limited to the skin and subcutaneous cellular tissue, there is caries of a portion of the tendons (especially the flexors), or of the ligaments of the region, and also, at times, necrosis of the bone with synovitis and arthritis. By extension, though we think, improperly, the name has also been given to the felon of the region of the cannon, while the application ought to be confined to that of the digital region, situated in the fold of the fetlock.

The quittor may be superficial or deep-seated when it affects only the subcutaneous cellular tissue, uniting the skin to the tendons, or where the inflammation extends to the phalangeal sheath, and the pus accumulates into it. Differing from cutaneous quittor, this form, generally less common, is more frequently seen in the anterior than the posterior extremities. It may also be seen in cattle.

I.—*Symptoms*.—The first symptom is an excessive lameness, manifesting itself even where no visible change exists in the affected leg. The animal evidently suffers great pain, while his actions do not aid us in localizing it accurately, though the foot is always examined as being the probable seat of it, the animal raising it more rapidly than the other from the ground, and resting on it with much caution and hesitation. After from two to five days a phlegmonous tumor appears at the coronet, above the heel. It is extremely warm, and much more painful than that in cutaneous quittor, the hoof and the skin preventing the free development of the inflammation by strangulating it. The foot almost ceases to rest on the ground, but is flexed and raised from it, feeling in the parts being very painful. The swelling of the leg extends to the fetlock, or to the canons, and even to the knee. The animal has more or less fever, and when there is a deep quittor he loses all his appetite, and ordinarily lies down and continues in the recumbent posture.

Generally, much time is required for the phlegmon to assume the character of an abscess, as the slough, being in this case no longer formed by the cellular tissue, is slower to define itself. The process of suppuration is not so well localized; there is, on the contrary, a kind of deep abscess, which probably becomes complicated by the resistance opposed to the ulcerative inflammation by the aponeurosis of the sheath and the thickness of the skin. However this may be, it is always very difficult to recognize the presence of one or several of these abscesses, even when they form in the subcutaneous cellular tissue, and so much the more if the purulent gathering is deeply seated.

After the opening of the abscess and exfoliation of the slough, either with or without the dropping of a portion of the skin, there does not remain the simple wound of the cutaneous quittor, but on the contrary, a persistent fistula, running down a necrosed point of the tendons or of the fibrous sheathes. At times, almost from the outset, we may observe in the fold of the coronet numerous little pimples, which terminate in as many deep fistulæ, from which ooze a more or less thick humor, fœtid, puriform and bloody. In infrequent cases, the disease is unaccompanied with

suppuration, and there is a swelling, more or less hard, with a gradual diminution of the pain and other inflammatory symptoms. A more frequent complication is the suppurative inflammation of the tendinous sheaths, or even of the digital articulations. There may also be a diffused gangrene, with separation of the hoof and purulent infiltration under the horny box; periostitis, and caries of the cartilage. This is the deep tendinous quittor in the most severe form. In this last case, especially if there is an accumulation of pus in the tendinous sheath, the tumor is very painful, the slightest touch giving rise to the manifestation of extremely acute suffering, the hoof being constantly raised from the ground. The fever is violent, there is a complete anorexia, and the exercise of all functions is more or less disturbed. The compulsory resting upon the healthy legs may give rise to swelling of the hocks, and even to laminitis. In cattle, tendinous quittor becomes more painful than in the horse, and is always accompanied by a swelling which may extend to the knee. Rumination stops, and the animal endures great anguish. The slough is followed by a wound of varying depth, which often exposes the diseased articular surfaces of the phalange. If this remains too long, the pus may affect the inter-digital ligament, complicate the disease, and even make it incurable. In this case the amputation of one of the digits may sometimes be performed.

II.—*Progress, Duration and Termination.*—The duration is generally protracted; the disease often gives rise to chronic lesions difficult to remove. This will be easily understood, if we remember that the region affected is composed, between the skin and the bones, of synovial capsules, ligaments, tendons and aponeuroses, more or less cellular tissue, and of very strong nervous ramifications. If the disease is not very deeply seated or unilateral, complete recovery may be looked for; but if there are chronic lesions, if the articular surfaces become affected; especially if particles of bone are sloughing, if the animal recovers it will be but imperfectly, and it will usually be accompanied by ankylosis of the joint, and diffused gangrene is also a complication to be looked for.

III.—*Diagnosis.*—We said at the beginning that tendinous

quittor is a very obscure disease; the lameness is very great, but not characteristic; in proceeding, we referred to the acute local pains at the side of the tendinous cord of the cannon, the inflammatory swelling, the increase of local pains, and the general reactive fever.

IV.—*Prognosis*.—It is a very serious disease, on account of the possible complications and sequelæ. The loss, or the deformity of a phalanx, which are sometimes among the sequelæ of the felon of man, are in him, accidents which never give rise to serious complications, or are quickly forgotten, while in the horse such complications are equivalent to the death of the animal.

V.—*Etiology*.—The causes are the same as those of a simple quittor which is complicated with the tendinous kind; this is also observed after the subcutaneous abscesses, frequently resulting from bruises, or even from punctured wounds. It is most commonly met with in low bred horses and Fisher says that it is more frequent, and less malignant, in young than in adult animals; according to this writer it is a common manifestation of distemper. Irritating muds favor its development in the same manner in active as in simple quittor. It often appears without appreciable causes.

VI.—*Treatment*.—When tendinous quittor is superficial it requires about the same treatment as the simple kind, except that in this case the counter openings must be made early to prevent the sloughs, migrations of the pus and the gangrene. The surgeon must not forget that the inflammation in this affection must ordinarily terminate by suppuration, and he must bear in mind that there is a possibility of the modification of the inflamed cellular tissue, and that the mortified portion of that tissue must slough out, as their presence too long continued may be very dangerous. The general indication is to prevent, as much as possible, the accumulation of the pus, an indication which will be best fulfilled by making openings for its escape, even before the formation of the abscess. As the tissues which surround the pus are very resisting, nature will not be able, or if so, only with great difficulty, to effect the expulsion of these matters. It is for this reason that it is necessary to assist her operations by mak-

ing an opening for the escape of the pus and of the slough. The operation is without danger; but if it is not performed in good time the lesions will be likely to spread, the disease cease to remain a local trouble, and the life of the animal become compromised.

It is also more necessary to make an opening when the purulent secretion is established, for in this case it is important to avoid delay and to facilitate its escape. A simple longitudinal incision, four or five centimeters long, is sufficient, when the collection lies immediately under the cutaneous organ. This incision must involve the whole thickness of the skin, as far as the tendons, and should be made in the middle of the coronet region, as near the foot as possible. It gives rise to an abundant hemorrhage, which relieves the part, and warm poultices and baths, to accelerate the suppuration, are then indicated.

When the product of suppuration has passed in the tendinous sheath, a longitudinal opening of this part towards the most dependent points, is indicated. To do this, a canulated directory is introduced to guide the bistoury; when the incision is made, the pus flows freely, and by this mode the large blood-vessels and the various ligaments of the region are avoided in the operation.

Notwithstanding the incision, or if the suppuration had already accumulated before it was made, the pus may also accumulate in the pouch formed by the tendinous sheath behind the tendons. It is then very difficult to prevent its collection in those deep parts, and it may extend to the small sesamoid. It is because the pus cannot run towards the skin that it filtrates along the tendon. It is only by pressure and by injections that the indications presented can be fulfilled. After making free incisions, one may try by pressure to remove the pus accumulated between the tendons and their sheaths, following it by cleansing injections, which must be repeated as often as possible.

The wounds which remain after the slough, in the superficial tendinous quitor, and that which follows the opening of the simple or multiple abscesses when it is deeper, are always characterized by the presence of fistulas running down to some necrotic

spot of the tendons or of their sheaths. For these an injection is recommended of tincture of aloes, tincture of iodine, and sometimes of Villate's solution; lately, dressings with petroleum or phenic acid have been used. Phenicated baths, those of sulphate of iron and lotions of permanganate of potash have also proved useful. At times, when the fistulas are persistent, it is necessary, after enlarging them, to have recourse to actual cauterization with a pointed cautery introduced, while at a white heat, down to the bottom of the tract. A general dressing of the wound follows, with tincture of aloes, sometimes with egyptiacum. The dressings should be more or less frequent, according to the quantity of the pus discharged. We must dress until the wound is entirely healed, and it must moreover be carefully watched for fear of another infiltration of pus, or the formation of other fistulas.

Superficial cauterization is necessary in order to remove the induration and swellings likely to follow, and to stimulate the resolution. The action of the firing may be stimulated by blistering, or by an alterative ointment of iodide of mercury, of sulphur, &c.

(To be continued.)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 13.)

Actinomykosis of the Œsophagus.

A most interesting instance of the disease in the Œsophagus is described by Siedamgrotzky, who obtained the specimen fresh, and carefully examined it. The mucous membrane of the tube was covered with hundreds of small, flattened, sub-epithelial nodules, from one to four millimeters in diameter, mostly collected in groups, in each of which in a bright light, a small yellow centre could be distinguished by the naked eye. In some

*From the Veterinary Journal.

places the small tumors had become confluent to form irregular, compact masses, about twenty millimeters long, of a pale-red tint, and in which the yellowish-red centres or kernels were visible. Some of the tumors stood out from the mucous membrane like pin-heads. In the middle of the œsophagus was a similarly shaped polypus, from eight to nine millimeters in diameter at its base on the mucous membrane. The tissue of these masses was yellowish-red, soft, and filled with numbers of nodules containing the *Actinomyces*. †

Actinomykosis of the Stomach and Intestinal Canal.

Two specimens of the disease in the stomach and intestines are described by Johnes. In the second compartment of the stomach of an ox was found a round, flat tumor, the size of a fist, attached to its surface, and covered by normal mucous membrane. Its interior was soft, more or less spongy, and contained numerous small masses of nodules, consisting of conglomerations of the *Actinomyces*.

Bollinger alludes to what was described as a tuberculous ulcer in the rumen of a cow, but which he is of opinion was a case of actinomykosis.

Perroncito has described a sarcoma of the intestines and stomach, in which the fungus was found.

Actinomykosis of the Udder.

Johnes has described two instances, and Ponfick one, of the disease occurring in the udder. Two were in swine, and one was due to experimental inoculation. In Johnes's cases—accidental and experimental—the disease appeared as a diffused fibroma. In the accidental case, the udder was enormously enlarged, and weighed nearly sixteen pounds; it was hard, indefinite in mass, and on section appeared to be, from its white color, a

† An analogous instance, but the real nature of which was not suspected, is given in the *Edinburgh Veterinary Review* (vol. 4, p. 235), under the heading, "Degeneration of the Mucous Membrane of the Œsophagus." The membrane was studded with what was described as warty growths, some of them of great size.

cellular fibro-sarcomatous growth, in which the gland structure was limited to a few small masses in the midst of the new formation. The teats were partly normal, partly effaced by retraction into the tumor, and partly gangrenous and fissured. In the mass of the tumor were found a small number of well-defined nodules, from the size of a hazel-nut to that of a fist. The smallest of these contained a greyish-yellow or reddish mass, resembling brain tissue, with yellowish colored nuclei interspersed throughout. In the centre of the largest the matter appeared to be undergoing caseous degeneration, and in some of the interspaces was a greenish-yellow, thick, puriform fluid. The milk system was markedly altered. In places it was smaller and larger, and near the centre of the tumor it was flask or flagon-shaped, its outline being sharply defined, and the dilatations being filled with the typical spongy tumor mass.

In the case produced by inoculation, reference to which will be made hereafter, the most interesting fact is that the *Actinomyces* was introduced into the gland by its milk duct, and that the inflammation set up in the mucous membrane, which was at first adventitious, became interstitial—affecting the intra-acinous connective tissue, and producing intensive development of the glandular parenchyma, with, finally, extreme hypertrophy of all the connective tissue.

Ponick had sent to him the udder of a sow which had been affected with erysipelas (*Rothlauf*), but there was such an unusual disappearance of the proper gland tissue, and altogether the lesions were so different to those brought about by that malady, that the existence of another disease was suspected.

In the middle of the largest half of a round swelling involving the entire mass of the mammæ, and which was double the size of a child's head, were noticed a great number of soft, round nodules, fixed here and there in the lardaceous-looking substance of the tumor. This felt so peculiarly elastic, and was at the same time so compact, that on pressure on the surface it seemed as if the fluctuation was due to some deep-seated gelatinous fluid. This was enclosed in a white, dense, inelastic tissue, on the inner surface of which were some detached portions of the gland proper,

and which formed, with the thickened and indurated cutis, a continuous kind of rind. The entire mass gave the impression that the parts had been affected with diffuse inflammation, which had produced extreme induration of the skin and the subcutaneous and gland tissues. But what was peculiar, was the presence in the homogeneous mass of a considerable number—more than a dozen—of sharply-defined nodules, from the size of a cherry-stone to that of a walnut, imbedded in a spongy, flesh-like gelatinous matrix, and studded with yellowish spots, islets, and small cavities. These cavities contain a greyish-yellow fluid, in which a number of white bodies, the size of a millet-seed, were suspended.

Microscopically, no trace of the gland structure was found in the dense connective tissue. The yellow, flesh-like substance of the solid portion had a general resemblance to polymorphous round-cell tissue, with very few vessels, while lying in groups, in concentric strata of increasing dimensions, were small, white nodules. Throughout these, and in the fluid portion, were found immense numbers of the *Actinomyces*, many of them surrounded by a calcareous envelope. These felt like particles of sand.

Actinomykosis of the Lungs.

Actinomykosis of the lung of cattle had not been observed until Professor Pflug, Veterinary Professor in the University of Giessen, published an instance in 1882. Indeed, there were only four cases of lung actinomykosis recorded previous to this—two occurring in the human species, and two produced in calves by experimental inoculation—all recorded by Ponfick.

Pflug's case is very interesting, and is as follows:

A cow about five years old, appeared to be dull, did not eat as usual, and frequently coughed. For two days before the arrival of the veterinary surgeon, the appetite had almost gone, and the respirations and cough were so frequent that the owner thought the animal was suffering from inflammation of the lungs. The veterinary surgeon found the cow apathetic, nostrils widely dilated, and staggering about the stall; the dyspnoea was great, and breathing most laborious. Percussion on each side of the

chest yielded a dull sound, while auscultation detected an indefinable respiratory murmur, a bronchial rattle, and increased expiration. The pulse was proportionately strong, and the internal temperature 40.9° . Cent. On a second visit all the symptoms were increased, and as they bore a strong resemblance to those of contagious pleuro-pneumonia—then prevalent in the district—he had the animal slaughtered. On examination only the lungs were found to be diseased, being studded with miliary tubercles, and as this condition was very unusual, the parts were forwarded to Pflug.

The lungs were fully distended with air, and firm, but elastic; for the most part they were anæmic and generally white, only small portions being hyperæmic. The pleura was normal, but there appeared throughout very many miliary tubercles the size of a pin's head, which formed so many slight prominences on the membrane, and caused it to feel granular. The lungs did not sink in water, even when incised. The cut surface had a fine porous, or pumice-stone appearance; and no serum, but only a small quantity of blood could be squeezed from it on pressure. The inter-alveolar and interlobular lung tissue appeared to be slightly thickened and porous, and this, together with the emphysematous condition of the alveoli, gave the lung its strongly elastic consistency. On the cut surface were seen numberless minute tubercles, very granular, in size about that of a millet-seed, or a little larger. In the hyperæmic patches the tubercles were very conspicuous. In none of these nodules was there a yellow centre or softening, and to the unaided eye they looked very little different externally, or in consistency, from the ordinary crude grey tubercle which is developed into the yellow tubercle.

Thousands of these tubercles were observed throughout the lung, in the middle of the respiratory tissue, near the bronchi and blood-vessels, and in the vicinity of the lobular tissue.

On microscopical examination, in the lung substance were found an immense number of tubercles, so small that they escaped the naked eye. These were generally round, on the cut surface discoid, and when two were confluent, biscuit-shaped, or distorted, jagged, or gibbous.

The round or somewhat oval-shaped tubercles were generally about 0.45 mm., seldomer 0.30 ; 0.27, or 0.20 mm. in diameter,* and contained either a dark-tinted nucleus, or a spongy structure, with perhaps a dark nucleus in its midst.

This dark nucleus proved to be the most interesting discovery in the diseased lung. It was a round, globular, rarely a slightly oval body, with a diameter of from 0.04 to 0.05 millimeters. Under a low power its contour was sharp and distinct, and it had a yellowish-green tint, with a markedly radiating structure. With a higher radiating power, the contour was no longer sharp and circular, but notched or indented irregularly, and the radiating lines were found to be minute club-shaped particles, the smaller extremity being at the centre and the wider part toward the periphery of the mass. Still more highly magnified, there were distinctly observed in these radiating parts, particularly toward the centre, exceedingly minute, structureless granules of a light yellowish-green tint, refragent, of a diameter between 0.008 to 0.01 mm.

In some of the tubercles it was very difficult to discover this radiating nucleus; it was so small and delicate that it had to be looked for with the greatest care and patience, and was often composed of only a small number of the club-shaped radiating portions—from four to six, or only three, starting from a point in the centre.

In each tubercle, around the fungus, and forming a medium stratum, was a large mass of cells, about 0.25 mm. in diameter. These cells were round or slightly polygonal, and lying close to each other. There were also spindle-shaped and other cells. The cells of the middle stratum were composed of faintly granular protoplasm, with a large nucleus, which was stained a deep blue by hæmatoxylin. The external stratum was fibrous, the fibres being concentric around the cells; it formed the limit of the tubercle, isolating it more or less from the normal inter-alveolar tissue.

* A very large tubercle gave the following dimensions: Total diameter, 1.00 mm.; thickness of fibrous portion, 0.20; the middle cell portion enclosing the fungus, 0.60; *Actinomyces* tufts, 0.15.

There were other tubercles, as before mentioned, in which the fungus was so fine and small as to be difficult to detect.

In the anæmic portion of the lung, vesicular emphysema was well-marked, while in the hyperæmic portion there was no emphysema.

An important question arises with regard to the seat of these *Actinomyces* tufts in the lungs. Are they located in the parenchyma of the lungs, the alveoli, or in the lymph or blood-channels, and there give rise to the *Actinomyces* tubercles? It would appear that the tubercles containing the fungus are found in the parenchyma, rather than the alveoli. In the intermuscular connective tissue of the tongue they are nearly always located, and it appears to be the same with regard to the lungs. In both nodules or tubercles there is the same structure—an external fibrous capsule, a middle stratum of cells, and the fungus in the centre; the only difference is, that in the tongue the fungus mass is drusey, in the lungs it is globular.

Professor Marchand, in examining very many microscopical preparations of these lungs, discovered the *Actinomyces* tufts in the finest bronchi, evidently giving rise to a cellular exudation, thus strengthening the supposition that the fungus finds entrance through the respiratory passages.

Actinomykosis of the Skin, and Submucous and Intermuscular Connective Tissue.

Tumors which have, by some, been supposed to be of a scrofulous nature, and have received various names, such as “Cystosarcoma,” “Lymphoisarcoma,” “Hedgehog Throat” in Germany (and not improbably the so-called “wens” in Lincolnshire and elsewhere in this country), are somewhat common in cattle, rarer in other animals. Their chief seat is in the vicinity of the neck and head, toward the parotideal region. Several instances are recorded of similar tumors in other parts of the body, more or less voluminous, and which have, like those in the region of the head, been found to present the characters, and contain the microphite, which distinguish actinomykosis.

Perroncito describes a tumor removed from the anterior part of the neck of a three-year old ox. This tumor had a wide, undefined base, and weighed nearly three pounds. On section, it was found to be composed of shining connective tissue, encapsulating a sarcomatous mass, which contained small masses of the *Actinomyces*.

Johne alludes to an instance of actinomykoma on the right cheek of a young cow. It was isolated, the size of a hen's egg, fungiform, and apparently sarcomatous; the skin over it was ulcerated. A test-section removed from it during the life of the animal, was found to contain granulation nodules within which were the *Actinomyces*. Six months after this section was made the tumor had disappeared, and there was only at the posterior border of the jaw, between this and the parotid gland, a small, spindle-shaped, characteristic *Actinomyces* tumor, and in the loose connective tissue between the upper and lower buccal glands were more yellow nodules, the size of a pea, each containing the fungus. The interesting feature in this case is the disappearance of the tumor without surgical treatment, it having only been dressed with sulph. cupri pulv. after the section had been made.

Another instance John met with in a two-year-old heifer, which a round, fungoid, flesh-like tumor, about two inches in diameter, on the right cheek, near the angle of the mouth; it appeared to grow by an ill-defined pedicle from the muscles. The corresponding part of the buccal mucous membrane appeared to be healthy. On the surface of the growth were seen the characteristic yellow nodules, which proved it to be an actinomykosis tumor. On removal it was discovered to arise from the intermuscular tissue in the vicinity of the submucous connective tissue. The wound healed by primary intention.

Veterinary Surgeon Eckert, of Walhalben, had sent to John, amongst other specimens, a round, dense tumor, about three inches in diameter, which had been removed from the sub-cutis, immediately over the masseter muscle, at the angle of the lower jaw. At the upper part of the tumor, at an earlier period, was a

small fistulous opening, from which a whitish-yellow pus flowed, but which, having ceased, the opening healed, and the swelling became somewhat less prominent. Shortly before this period he saw a similar tumor, slightly larger, which, like the other, was attached by strong connective tissue to the structures beneath. On examination both tumors were found to be actinomycetomata; they were the size of, or bigger than large walnuts, spongy in texture, and full of the fungus tufts enclosed in a capsule of thick connective tissue arising from between the sub-cutis and the inter-muscular connective tissue.

Rabe relates the case of a cow, which had a number of pale, greyish-red tumors, round or somewhat bean-shaped, and of various sizes, on the left side of the face. The largest, about the size of a hen's egg, was situated at the outer margin of the nostril, where the cutis joins the mucous membrane, and was surrounded by a number of smaller and very small tumors. There were eleven others, varying in size from that of a hazel-nut to a plum, in the masseteric region; these were more or less apart, but between them were smaller ones, and here and there a marked cordiform kind of swelling—not unlike the inflamed lymphatics of farcy. The majority of the tumors lay immediately beneath the skin or the fascia of the facial muscles; the surface was smooth, and each tumor seemed to be isolated from its fellows. Over some of them the cutis had become ulcerated, and they appeared on their upper surface moist, red, and fungoid.

On section of these tumors there were observed a great number, particularly towards their periphery, of dull-yellow nodules the size of a pin's head, in the neighborhood of which the tissue was soft, spongy, and moist. On microscopical examination each of these yellow, submiliary granules was found to contain the *Actinomyces* tufts in abundance, and in their immediate vicinity a great quantity of pus-corpuscles and young connective-tissue cells, with very turbid protoplasm, and other characteristic appearance.

(*To be continued.*)

ON THE PRODUCTION OF IMMUNITY FROM CONTAGIOUS FEVERS BY INOCULATION WITH DILUTED VIRUS.

BY D. E. SALMON, D.V.M.

A few years ago, a considerable number of extremely ingenious and instructive experiments were made by M. Chauveau, which demonstrated beyond the possibility of doubt that the active principle of virulent liquids consisted of solid particles held in suspension, and not of soluble chemical substances. These experiments were modelled after those of Spallanzani with the spermatic fluid, by which he proved so conclusively that the fecundating agent was not the *aura seminis* of the older philosophers, but existed as suspended and insoluble particles.

The idea of one series of experiments was to obtain the results of inoculations with diluted virus. If, after the dilution was carried to a certain extent, the inoculations in some cases produced the disease and in others did not affect the animals, he reasoned that this must be due to the fact of the solid particles being too few to exist in every drop of the diluted liquids, and that the disease was only caused by those drops which contained one or more of the virulent particles. If the virus was a soluble poison, it should exist equally in every drop, even of the greatest dilutions.

Practically he found that virus diluted to the same degree sometimes produced the symptoms of the malady with all their intensity, while sometimes it had no effect whatever. Vaccine virus diluted to one-fiftieth nearly always failed, and this was accepted as a proof of the theory that the active agent consisted of solid particles too few to be inserted in every inoculation puncture. Similar experiments were made by way of confirmation with the virus of small-pox, sheep-pox, and glanders.

From that time until the present, no one, as I am aware, with the single exception of Chauveau himself, has ever expressed a doubt in regard to the inability of a single disease-germ, once introduced into the tissue of the body, to produce the disease with all its characters. On the other hand, our best scientific authori-

ties have felt confident in assuming that because disease-germs evidently have the power of multiplying themselves indefinitely, when the conditions are favorable, a single one of these would produce the disease as certainly as a larger number, though it would probably require a longer period of incubation.

Strange and inexplicable as it may appear to us, this assumption is not in accordance with the truth, and if the conclusions from all of M. Chauveau's experiments had been as defective as with this series, which happily they were not, we might well have doubted the power of man to solve a problem so complicated and mysterious.

If we examine a drop of fresh vaccine lymph, with suitable precautions, we will have no difficulty in deciding that it contains many more than fifty germs, and that, consequently, if Chauveau's reasoning was correct there should have been no failures with dilutions of one to fifty.* Again, Chauveau's experiments with diluted virus, like those of every other investigator who has attempted the same line of research, are unreliable and defective, because, first, lymph, blood, or other liquids taken from the animal body contain cells, organic *débris* and coagula to which the germs adhere and which prevent their regular diffusion in the diluting liquid; secondly, because the number of germs in a drop of lymph from different pustules, or in a drop of blood from different animals, varies to an extraordinary degree; and, thirdly, because different animals have a different degree of susceptibility in regard to the germs of the same disease. In other words, just as there is a *vis medicatrix naturæ* which enables a certain number of the individuals in which disease-germs have multiplied to overcome such germs and to recover from contagious diseases, so there is a *vis conservatrix naturæ*, by which not only a certain number of individuals resist the germs of any given disease, but which enables every individual to resist a certain number of these germs.

* I hope that the opponents of the germ theory will forgive me for assuming that the organisms seen in virulent liquids are disease-germs, for it would be manifestly impossible for me to enter into a discussion of this question in the present article.

When, in the summer of 1880, I commenced my investigations of the effect of inoculations with diluted virus, I soon became convinced that, to obtain definite and comparable results, it was necessary to obtain a virus of a standard strength, and one free from coagula and other foreign particles which prevent the even diffusion of the virulent granules. In these experiments, fowl-cholera was the disease selected, not only because it is an excellent type of the non-recurrent contagious fevers; but also because the virus is easily cultivated outside of the body, the subjects are cheap and easily obtained, and the Department of Agriculture, with which I am connected, was anxious for an investigation in the interests of our agricultural population.

The production of a virus which should contain a practically constant number of disease-germs in every drop, which could be obtained at will and in any desired quantity, which should be free from foreign particles, certainly seemed, at the time I am referring to, a most difficult question to resolve. But, fortunately, the obstacles to our success, as so frequently happens, did not prove so insurmountable when we came to grapple with them as they had appeared when contemplated from a greater distance. The germs of this disease were easily cultivated in a broth made from the flesh of fowls, which was carefully filtered until perfectly limpid and sterilized by heat. A few germs placed in a flask of this liquid, multiplied for a certain time and then became inactive. Pasteur demonstrated that this cessation of activity was due to the exhaustion of the available nutriment. What, then, would be easier than to make a broth of a definite strength by extracting the soluble parts of a given weight of flesh with a given quantity of distilled water? If we cultivate our germs in such a broth, at a favorable temperature, we should always obtain, at the moment when the nutriment is exhausted, a virus of practically identical strength. This reasoning, I may add, has been fully justified by the many experiments which I have made with a standard virus prepared in this way.

The number of germs in a drop of such standard virus, I have never accurately determined, but I assured myself at an early stage of these researches that there were over one million six hundred thousand.

It was not until the 13th of May, 1881, that my methods of investigation were sufficiently perfected to allow the inauguration of a series of experiments by inoculating with dilutions of a standard virus. The inoculations always consisted of a single lancet puncture, and as much of the virulent liquid as would adhere to the grooved lancet was inserted between the skin and the muscles beneath the wing.

It will be necessary for me to refer here to some symptoms of this disease, in order that the reader may better appreciate the results of these experiments. Owing to some anatomical and physiological peculiarities of birds, the secretions of the kidneys are added in the cloaca to the fæces. The kidney secretion of birds is of a semi-solid consistency. It is in health perfectly white and is seldom intimately mixed with the bowel contents. This white secretion of the kidneys, which for convenience I call the urates, is easily seen and examined in the droppings. The very first symptom which is seen after inoculation with strong fowl cholera virus is a slight yellowish discoloration of the urates, due very probably to disturbance of the liver, as this organ is the one most constantly and most intensely affected in the disease under consideration. A day or two later, the droppings are more frequent and consist almost entirely of the yellowish urates mixed with an increased proportion of liquid. The fleshy parts about the head now become pale and bloodless, the temperature rises four or five degrees, the appetite is lost, the bird becomes dull, stupid, sleepy, and finally dies within two or three days from the first symptoms.

May 13, 1881, I inoculated four fowls with diluted virus; for one the dilution was 1 to 50; for the second, 1 to 500; for the third, 1 to 2,500; for the fourth, 1 to 5,000.* With the first one the urates were slightly tinged for a day or two; with the second the urates were deeply colored, and there was a loss of appetite for a few days; with the remaining two the urates showed no signs of coloration, nor was there any apparent change in the perfect health of these birds. The most important result of the

* Details of these experiments will be found in the Report of the Department of Agriculture for 1881 and 1882, p. 285.

inoculations was a slight circumscribed inflammation, which was noticed in each case at the point of inoculation the seventh day after the operation. This local lesion is very apparent from the increased size of the blood-vessels, and a noticeable swelling from one-fourth to three-fourths of an inch in diameter.

At the time of these experiments, I underestimated the importance of the lesion just described, for, while I thought it possible that a slight degree of immunity might be obtained by means of it, I could not conceive that a complete insusceptibility would result without the yellow urates and other symptoms of a constitutional affection. That is, it was naturally expected that a mild attack of the fever was necessary to protect against the subsequent recurrence of the disease.

Being desirous of producing the general fever of as mild a type as possible, I now inoculated the four fowls with the same virus diluted as 1 to 1,000. What was my surprise to see each one of these birds succumb to the disease in its most virulent and fatal form! I was now brought face to face with the great obstacle which has always prevented the physiological investigator from developing an exact science, and which had proved an insurmountable difficulty to those who had previously attempted this line of investigation—that is, the individual peculiarities of living animals.

It was not to be supposed that the birds in the first experiments, escaped because no germs were introduced with the diluted virus, since in a dilution of 1 to 2,500 there would be more than 600 germs to every drop, and in the dilution of 1 to 50 these would be increased to more than 30,000; besides there was the local inflammation which developed after the punctures had healed, and with two of the birds a sufficient coloration of the urates to denote constitutional disturbance.

My experiments have demonstrated, conclusively, that susceptibility and insusceptibility are only relative and never absolute conditions. A certain proportion of fowls will resist inoculation with a drop of strong virus, but if we increase the dose to ten, twenty, thirty, or sixty drops, even these may be made to contract the disease. As we decrease the dose to one-

fiftieth, or one five-hundreth, one thousandth of a drop, we find that the proportion of fowls which contract the affection becomes continually smaller and smaller. Measuring the susceptibility of fowls by means of this diluted virus, we find that it varies to an enormous extent with different individuals. In one case a bird died from inoculation with one-forty-thousanth of a drop, while another resisted the enormous dose of one drachm, or about two and one-half million times the former amount.

We will now return to our experiments in the production of immunity. The 2d of June, 1881, the two birds which had been inoculated with dilutions of 1 to 50 and 1 to 500 and recovered, received an inoculation with pure standard virus, while the two which had been inoculated with the dilutions of 1 to 2,500 and 1 to 5,000, were tested with a dilution of 1 to 500. Not one of these inoculations produced the least effect; the punctures healed and remained free from irritation as though no virus had been inserted, and the general health was not in the least disturbed.

On November 7, 1881, I inoculated two fowls with a dilution of 1 to 2,500, two others with a dilution of 1 to 5,000, two others with a dilution of 1 to 10,000, and two others with the undiluted virus. The last two died, as did one from each of the first two lots. The remaining four birds had a well-marked local lesion, but no constitutional disturbance, and remained in the best of health. December 6th, all were inoculated with a dilution of 1 to 500. This producing no effect, either general or local, they were reinoculated December 13th with undiluted standard virus. Two now showed more or less coloration of the urates, but no other signs of ill health; the appetite and general appearance were perfect throughout the experiment.

Ten fowls were inoculated November 28th with a dilution of 1 to 10,000. Of these, three died, two had mild attacks and recovered, while five had the local lesion with no general symptoms. December 21st, the seven birds which recovered from these inoculations were inoculated with the strongest virus. This was followed in one or two cases with yellow urates, but there was no loss of appetite or dulness, and all remained in excellent health.

Up to this time more than eighty birds have been inoculated

with diluted virus, though, as the remaining experiments have only recently been communicated to the Department of Agriculture, it would be premature for me to publish details at present. I may say, however, that with dilutions beyond 1 to 100,000, I have had no results, and it appears that inoculations with dilutions of 1 to 80,000 would give the local lesion and immunity to the most susceptible birds, and that the remainder could then be safely inoculated with a dilution of 1 to 10,000, which would grant immunity to all or nearly all. The experiments are still too few, however, to enable us to be perfectly certain in regard to the strength of virus to use with the greatest safety. The birds protected in this way have not only been tested with strong virus, but they have been placed in infected runs with sick birds, and in no case has there been a failure to resist the contagion.

From these experiments a number of exceedingly important conclusions may be safely drawn :

First.—A single disease-germ cannot produce this extremely virulent disease; it cannot even multiply sufficiently to produce the local irritation at the point of inoculation. When a quantity of virus was introduced into the tissues, which should have contained at least twelve germs, there was no effect, either general or local, but by increasing this one-third with the same birds, the local irritation appeared.

Second.—It is apparent that the local resistance to the germ fails while the constitutional resistance may still be perfect, and that in this case there may be a local multiplication of the organisms for two or three weeks without any disturbance of the general health.

Third.—That this local multiplication of the virus is sufficient to grant a very complete immunity from the effects of such virus in the future.

From these conclusions it follows that the most virulent virus may be diluted to such an extent as to become practically a vaccine, and that in this condition it may be used safely for producing insusceptibility.

These facts are not exactly what we should have expected from theoretical considerations, but unless I am greatly mistaken,

they are on this account, even, destined to modify our ideas very materially as to the general principles underlying the contagia and the contagious fevers. At present I can do no more than refer to this aspect of the question, leaving the practical applications to suggest themselves, as I believe they will, to every one who ponders over the many mysteries connected with the phenomena of this class of diseases.

(To be continued.)

PATHOLOGICAL PHYSIOLOGY.

A STATISTIC OF THE PREVENTIVE VACCINATION AGAINST ANTHRAX.

BY M. L. PASTEUR.

According to Mr. Boutet, reporting the result of the vaccinations performed in the Department of Eure-et-Loir, the number of sheep vaccinated amounts to 79,392. The average annual death rate of these flocks for the last ten years was 7,237, or 9.01 per 100. Since the vaccination only 518 animals have died; an average of 0.65 per cent. It must be remarked that this year, probably on account of the great dampness, the mortality in this department has been only of 3 per 100. The losses there ought to have been 2,382 instead of 518 after the vaccinations.

In the flocks which were only partly vaccinated, 2,308 were and 1,659 were not operated upon. The deaths in the first amounted to 8, or 0.4 per 100, and upon the second 60, or 3.9 per 100. In this department all animals were submitted to the same conditions of soil, lodging, food and temperature, and consequently were submitted to exactly identical influences.

Among cattle, 4,562 animals were vaccinated. In this number the average yearly deaths were 322. Since the vaccinations only 11 cows have died; the annual mortality, which was 7.02 per hundred, has been 0.24 per 100.

On account of swellings, generally without gravity, taking place in horses, and as the mortality from anthrax in this species is quite low, the vaccinations has not been carried on a large scale. Only 524 horses were vaccinated, amongst which three died between the two inoculations

Besides showing the importance of the results thus obtained, M. Pasteur says that during the last six weeks 13,000 sheep, 3,500 oxen, and 20 horses were vaccinated, and that out of this number, 16,520 animals, not one accident has been observed.—*Gazette Medicale*.

PASSAGE OF THE BACTERIDIE OF ANTHRAX FROM THE MOTHER
TO THE FŒTUS.

BY MESSRS. L. STRAUS and CH. CHAMBERLAND.

According to recent experiments, thy authors have found that the placenta does not form, as it was believed, an insurmountable barrier to the bacteridie, and the law of Brauell-Davaine, which generalizes an exception, is erroneous ; an error which, it must be acknowledged, was a fortunate one, and profitable to science, since it has furnished the parasitic theory of infectious diseases, one of the most apparently demonstrative arguments, when direct proofs were not as abundant as at present.

The new notion of the possibility of the passage of the bacteridie of anthrax from the mother to the fœtus, may serve to explain certain cases of immunity, principally against anthrax, which seem to have been observed in some cases upon lambs, whose mothers had received vaccination while pregnant. And again, the non-constancy of this passage may explain also why, in a few cases, this immunity does not exist ; and, finally, some person having observed in flocks of mothers vaccinated during pregnancy (ewes and cows), cases of abortion, there is reason to ask if these were not due to the intra-uterine contamination of the fœtus by the vaccinal bacteridie, which would have killed the fœtus when the more robust mother would have recovered from it.—*Gazette Medicale*.

UPON THE CULTURE OF THE MICROBE OF GLANDERS, AND UPON
THE TRANSMISSION OF THE DISEASE BY THE LIQUIDS OF CULTURE.

BY MESSRS. C. BOUCHARD, CAPITAN and CHARRIN.

After M. Christal & Kiener, who first, in 1868, had mentioned the presence of microbes in the products of glanders, the authors

have observed the existence of these organisms, not only in the parts exposed to the air, such as the nasal ulcerations and pulmonary abscesses, but also in structures not exposed—glands, the spleen and the liver.

The constant presence of these organisms, presenting always the same characters, was a supposition in favor of the pathological part, they may play in the production of the disease. To demonstrate that it really belongs to them, it was necessary to reproduce glanders in the animal, and especially in the donkey, by inoculating their microbes alone, developed outside of the diseased organism, and without being mixed with other particles coming from the body of the glandered animal. It was then necessary to proceed by the mode of successive cultures.

The authors have succeeded in obtaining the multiplication of the microbes of the glandrous products of man, horse and guinea-pigs in neutralized solutions of extracts of meat, placed in ovens at temperature of 37°.

Through successive cultures, they obtained the development of the microbe free of all mixture to the eighth culture. The growth was not obtained in vases opened to the air.

Preliminary experiments have shown them that the first and second cultures retained the virulent property of the pus of glanders.

Glanders produced in guinea-pigs by the inoculation of cultures, was absolutely alike, anatomically speaking, to that produced in the same animal by products taken directly from the horse.

Glanders, then, seems to be the second virulent disease of man whose parasitic nature is proved. This being so far demonstrated only for anthrax, amongst the virulent diseases to which man is subject.—*Academie de Medecine.*

EXTRACTS FROM FOREIGN JOURNALS.

FRACTURE OF THE NAVICULAR BONE IN A HIND LEG.

BY M. MOLLEREAU.

The subject was an English horse, which became suddenly lame when at work, harnessed to a coupê. The animal is in great pain;

his foot does not rest on the ground, but is constantly moving forward under the influence of frequent lancinating pains. Pressure at the coronet, on a level with the quarters, seems to give rise to a great deal of pain, more manifest when the foot is rotated or carried in excessive extension or flexion. A diagnosis is made of fracture of the os pedis. On account of complications taking place, the animal is destroyed. On post-mortem, the navicular bone is found fractured in several pieces and seems to be floating in a large hemorrhagic center. The tendon of the flexor perforans is ruptured, as well as the posterior ligaments of the articulation of the os pedis, there is a sanious synovitis of the small sesamoideal sheath. As there was no external lesion on the plantar surface of the foot, one is justified in attributing the cause of the injury to powerful muscular contraction.—*Annales de Bruxelles*.

TRAUMATIC TETANUS—NEUROTOMY—RECOVERY.

BY M. JACOTIN AND HENRYON.

A female donkey, aged 20 years, received the 25th of December, 1882, a wound on the outside of the right hind fetlock, which up to the 20th of January, 1883, has not interfered with her work. On the 24th she manifested some rigidity of the muscles of mastication, has difficulty in taking her food, and shows the evident symptoms of lockjaw. She has trismus, protrusion of the membranæ nictitans; opisthotonos and rigidity of all the muscles of the legs. She is very irritable, and moves with great difficulty. The wound of the fetlock is of a dark red, soiled with mud, and is evidently the starting point of this well characterized case of tetanus. The treatment consisted in the operation of plantar neurotomy upon the external plantar nerve, and deep cauterization with the iron of the wound of the fetlock. A slight improvement was observed on the next day. On the 30th of January the walking is better, legs less stiff, the jaws moving a little better. The wound goes rapidly on towards cicatrization. On the 1st of February the animal is gay, her appetite normal, movements much improved; the next day she is discharged, convalescent.—*Archives Veterinaires*.

HEMIPLEGIA CAUSED BY PRESSURE UPON THE BRACHIAL PLEXUS IN THE HORSE.

BY M. L. TRASBOT.

The subject of this article was a heavy draught horse, which was operated on for a deep punctured wound of the left fore foot on the external side of the anterior zone of the foot. The animal had been thrown on the right side, and the left fore leg secured on the hind leg of the same side. The operation was performed in less than fifteen minutes, the animal struggling violently during the whole time it lasted. On getting up he showed paralysis of the right fore leg, which was followed several days after by a loss of power on the hind leg of the same side. These two complications, however, subsided under proper treatment, and some ten or fifteen days later he was returned to his work. This is an interesting case of progressive irritation of the nerves of the left leg which extended to the marrow and gave rise to the manifestation of the hemiplegia.—*Archives Veterinaries*.

DYSTOKIA IN A COW—HYDROCEPHALIC FŒTUS—ANTERIOR LEGS CROSSING EACH OTHER—DECAPITATION—EXTENSION OF THE LEGS—RECOVERY OF THE MOTHER.

BY M. DAIRE.

The author, being called to give his attention to a cow in labor, finds on exploration that the bottom of the vagina is filled by an obtuse mass, covered with hair, which at the first sensation seems to be a muscular part, the croup, perhaps. Following the investigation two moveable prolongations are detected—the ears. Towards the inferior part of the mass is felt the imperfectly developed jaws. It is a case of hydrocephalus. Attempts to engage the head in the proper condition failing, a large incision is made with the *bistoury à serpette* through the skin covering the cranium, whose frontal bony structure is missing, and a quantity of sero-mucous fluid, resembling the amniotic liquid, is allowed to escape. The mass then subsides, and a loop of rope secured on the neck; and the head, placed in proper condition, is drawn into the vagina.

Finding it impossible to bring the fœtus out, the head is cut off, the front legs, which in being crossed are pressing against the anterior border of the pubis, are straightened, and by moderate and regular traction the animal was happily delivered, the operation lasting about half an hour. The cow remained in perfect health after the operation.—*Archives Veterinaires*.

REPORTS OF CASES.

DISLOCATION AT THE HOCK JOINT OF A COW.

Last month a valuable short-horn cow, belonging to the Ohio State University, slipped as she was going into the stable, and fell upon her side. On attempting to get up it was seen that the near hind leg was dislocated outwards and forwards at the hock joint. The end of the tibia formed a prominence on the inside of the limb, while on the outside the calcis and astragalus were equally out of line. The cow, although in good flesh, was too valuable to be slaughtered, and therefore an attempt was made to reduce the dislocation. A broad strap was put round the leg close below the joint, and with this an assistant drew the leg very gently but forcibly backwards. As soon as the displaced bones were brought opposite their proper places sudden pressure on the end of the tibia with one hand and a little rolling backwards, and pressure inwards upon the astragalus with the other hand brought the bones into place with the usual snap. The time occupied in reducing the location was less than will be required to read this brief report of the case. Immediately after the reduction the joint was bathed in warm water to allay pain and tenderness; subsequently when the joint became somewhat swollen and hot it was frequently bathed in cold water; when the inflammation had subsided a little oil of turpentine was rubbed about the joint. The cow is still lame, but is able to bear her weight on that limb; it is rapidly improving.

The writer begs to call attention to this case in order to draw from it a lesson. Here was a serious injury, such as would usually prompt the slaughter of an animal, oftentimes at great pecuniary

loss. In this instance, however, no loss was sustained, and the injury was easily relieved by ordinary surgical skill. Is it not probable that when such accidents occur many valuable animals are slaughtered unnecessarily? In such cases would it not be better to summon a veterinarian than to seize the butcher's knife?

N. S. TOWNSEND.

Columbus, Ohio, April 5th, 1883.

A PECULIAR FORM OF SKIN DISEASE FOLLOWING LAMENESS.

PHILADELPHIA, PA., February 26, 1883.

On the 23d of October last, I was called to see a dark brown geld. 15½ hands, about eight years old. This animal I was told, had been lame on several occasions during the preceding three weeks, and at the time I found him lame in the near hind limb; lameness characteristic of that in the lower part of the extremity. After a very careful and repeated examination, I located the trouble at the fetlock joint, but preferred to wait another twenty-four hours before making a positive diagnosis. At this point there was increased heat, a little swelling, but no appearance of a strain or injury of any kind. I placed the animal under alternative treatment of dram doses of the iodide and nitrate of potass, and the same amount of carbonate soda; believing that I had a case of rheumatism to deal with. I also ordered the parts bathed with soap liniment. Visited the next day, symptoms and conditions the same, except slight loss of appetite and an elevation of one degree in his temperature. Two days later, on calling to see my patient, I was confronted with a well marked case of hip-joint lameness, with considerable heat at the latter articulation. The fever at the fetlock had disappeared. Continued the same treatment, as I felt more satisfied that the lameness was rheumatic in character. On the 25th no better, and I gave my patient a purging ball of six drachms of aloes, which acted promptly and well. Calling on the 27th, I found my patient all right, lameness gone, no fever in any part of the limb, and to all appearances as well as before. Feeling uncertain as to whether the alteratives or purging removed the lameness, I reminded the owner of the probability of its return. About three days had elapsed when

I was hurriedly sent for to see this horse, but was unable to visit the horse until another twenty-four hours had passed by. Imagine my surprise to find my previous fine looking patient an object of pity and disgust; from the tip of the nose to the base of the tail, he was marked with ragged dirty edged ulcers, from which issued a bad odored discharge of a sebaceous character. Where these had not broken I found a large number of poorly defined elevations of the skin, which would raise up and run their course in about thirty-six hours. Little heat was found present, prior to their bursting and discharging a very viscid and whitish exudate. These patches varied in size from a ten cent piece to five or six inches in diameter, though the latter usually represented several smaller ones united. They started at the point of the shoulder, spread to the neck, head, and then the limbs and back, and twenty-four hours had scarcely elapsed from the first appearance, before he was literally covered with them. The subcutaneous glandular structures seemed in perfect condition and these ulcerations wholly confined to the skin. Uncertain as to what I had to deal with, I decided to adopt the following form of treatment: Three times daily he received drachm doses of Donovan's solution of arsenic, with three pills, each containing twenty grains of sulphate cinchonidia. Externally a wash composed of the biborate and bicarbonate of soda. Two days later there were no new ones apparent, and in four days all had run their course, and in less than a week there were left no traces of the diseased process, and he was placed at work, since when he has not shown any lameness or other diseased condition. Desirous of hearing from other practitioners who have had similar cases, and their diagnosis, I convey these records to the readers of the *Review*.

W. HORACE HOSKINS.

LIVE STOCK GROWERS' ASSOCIATION OF WYOMING TERRITORY.

At the annual meeting of the Live Stock Growers' Association of Wyoming Territory, Dr. Hoppkins, the State Veterinarian,

presented the report of his labors in relation to his position since he was appointed, showing the condition and the extent of diseases amongst the cattle of the Territory. The report, which was full of wise suggestions, was accepted and highly appreciated.

At the same meeting the following was submitted and adopted :

Whereas, The existence of contagious pleuro-pneumonia among the cattle in the States of New York, New Jersey, Pennsylvania, Maryland and Virginia threaten the prosperity of the stock growing industry, and

Whereas, In consequence of the existence of said contagious disease, England has placed such restrictions on the cattle trade as to cause an annual loss of \$6,000,000 to stock growers, and

Whereas, State laws have failed to "stamp out" the contagion or otherwise control the movement of cattle from the infected localities to healthy States, and

Whereas, By reason of the failure of State laws to protect this industry, Federal legislation is a necessity ; therefore,

Be it Resolved, That this Association appoint a committee of five to unite with Stock Associations and State Agricultural Societies of the different States, in calling a congress of Stock Growers to meet in Chicago, Ill., in the month of September, 1883, (at the time of the fat stock show), for the consideration and the securing of such national legislation as will prevent the spread of and stamp out contagious pleuro-pneumonia from the States now infected.

Upon motion, it was ordered that the chair should appoint a committee of five, to whom would be intrusted the duties as described in the above resolution. The chair took the appointment of the committee under advisement.—*Cheyenne Daily Sun*.

COLLEGE COMMENCEMENTS.

ONTARIO VETERINARY COLLEGE.

The annual presentation of the prizes and diplomas to the successful students attending the Ontario Veterinary College, took place on Friday. Prof. Smith, President of the College,

occupied the chair. Among those present were his Honor the Lieutenant-Governor, His Worship the Mayor, Professor Buckland, Dr. Thornton, Major Lewis, Mr. Gamble Geddes, A. D. C.; Mr. Henry Wade, Secretary of the Agricultural and Arts Association; and Mr. Elliot, President of the Ontario Veterinary Association.

Prof. Smith welcomed the visitors to the College and stated that the session just closed had been the most successful of any session in the history of the College. During the session there were 150 students in attendance, and at the last examination 86 juniors entered the College. He called upon Dr. Duncan to read the list of successful candidates, as follows :

PRIZE AND HONOR LIST.

Seniors.

Pathology : Silver medal, C. C. McLean ; 2d prize, H. F. James ; 3d, H. B. Adair. Honors : Blank, Blackall, Carter, Dunn, V. L. James, Jopling, Newton, Plank, Sallade, Line, Stimpson, Smith, A. Thompson, Van Zant.

Anatomy : Silver Medal, H. F. James ; 2d prize, C. C. McLean ; 3d, H. B. Adair and J. Newton (equal). Honors : Dunn, V. L. James, Jeffery, Jones, Jopling, Kerr, Plank, Sallade, A. Thompson, Wight.

Entozoa : 1st prize, J. Newton. Honors : R. W. Carter, C. M. Dunn, H. F. James, W. Jopling, M. W. Plank, J. W. Sallade, A. Thompson, Stimpson.

Microscopy : 1st prize, C. M. Dunn. Honors : Dickinson, V. L. James, Queen.

Seniors.

Physiology : 1st prize, H. F. James ; 2d, Sallade ; 3d, Dunn. Honors : Adair, Blackall, Blank, Courtenay, Fisher, Jopling, McLean, Newton, Plank, Line, A. E. Thompson, Wight.

Chemistry : 1st prize, W. Jopling ; 2d, J. Newton ; 3d, S. Dickenson. Honors : Armstrong, Adair, Dunn, McLean, Sallade, Stimpson, A. Thompson, Wight.

Anatomical Preparation : Silver Medal—H. B. Adair ; 2d, V. L. James.

Materia Medica: 1st prize, H. F. James; 2d, Sallade; 3d, Line. Honors: Adair, Dunn, Dickenson, V. L. James, McLean, Newton, Smith.

Breeding and Management of Stock: 1st prize, \$20 in books (by Hon. Commissioner of Agriculture), Wm. Jopling; 2d, \$15 in books (Council of Agriculture and Arts Association), H. F. James; 3d, \$10 in books (Agriculture and Arts Association), H. B. Adair.

Gold medal for best general examination, presented by the Ontario Veterinary Medical Association, H. F. James, Ottawa. Honors: Adair, Jopling, V. L. James, McLean, Sallade.

LIST OF GRADUATES, 1882-83.

The following gentlemen graduated for the session just closed: Harry B. Adair, Paris, Ky.; Frank H. Armstrong, AuSable, Mich.; Vinton A. Berry, Marion, Ohio; James E. Blackall, Birr, Ont.; Cyrus J. Blank, Coopersburg, Pa.; Elmer E. Bowen, Tyre, N. Y.; Robert W. Carter, Guelph; Edward St. Geo. Courtenay, Waterford, Ireland; John B. Crane, Sharon Centre, Ohio; Samuel S. Dickenson, Zion, Ont.; Charles M. Dunn, Hamilton; Jas. W. Fisher, Baillieboro, Ont.; Edward R. Forbes, Toronto; William R. Howe, Cleveland; V. L. James, Springfield, N. Y.; Harry F. James, Ottawa; George P. Jeffery, Toronto; James Johnston, Dundee; Robert A. Jones, Simcoe; William Jopling, Parkhill; Jessie R. Keeler, Harleyville, Penn.; Thos. Kerr, Wingham; Charles C. McLean, Meadville, Pa.; Geo. Murray, Ridgetown; John Newton, Weston; John Perdue, Orangeville; Mortimer W. Plank, Uxbridge; Marshall M. Poucher, Oswego, N. Y.; Tipton J. Queen, Salineville, Ohio; John F. Quinn, Edmonton, Ont.; Wm. R. Rowe, Rondeau; James W. Sallade, Reading, Penn.; Allen S. Shiner, Shinersville, Penn.; Merritt W. Sine, Sterling, Ont.; James F. Smith, Port Ryerse, Ont.; Jacob Stallman, Rochester, N. Y.; John G. Stewart, Brantford; Robert W. Stewart, Mount Victory, Ohio; George W. Stimpson, Mackinaw City, Mich.; Albert E. Thompson, Strathroy; Joseph B. Thompson, New York; Henry Van Zant, Mongola, Ont.; Jonathan C. Whitney, Allen, Mich.; Willard E. Wright, Millbury, Ohio; James Addison, Newmarket; J. H. Schoonmaker, New York.

PRIZE AND HONOR LIST.

Juniors.

Anatomy: Silver Medal, L. C. Tiffany; 2d, J. F. Reed; 3d, G. W. Butler. Honors: G. G. Blank, E. Courtney, A. Harthill, F. Hewitt, J. S. Ormsby, H. G. Reed, J. Sutcliffe, E. A. Steinburg, John Wilson, James Wilson, H. Waldron.

Pathology: 2st prize, J. F. Reed; 2d, L. C. Tiffany; 3d, G. W. Butler. Honors: Blank, Courtney, Cruikshank, Eiserman, Graham, Harthill, Hewitt, Kincaid, Livingston, McArthur, Mason, Ormsby, Barker, Reed, Shaw, Stork, Steinburg, Sutcliffe, Tenant, Waldron, James Wilson, John Wilson.

Chemistry: 1st prize, Silverthorne; 2d, Ardiel.

Physiology: 1st prize, H. G. Reed; 2d, J. H. Reed; 3d, W. F. Berry. Honors: Butler, G. W. Kincaid, W. R. McArthur, L. C. Tiffany, Jas. Wilson, John Wilson, H. Waldron.

THE GOVERNOR'S ADDRESS.

Lieutenant-Governor Robinson then addressed the students assembled. He had heard a great deal about the success of the College within the past few years, as well as the great number of graduates who had gone to practice their profession in this country, armed with diplomas of the College. He was glad, as Lieutenant-Governor of the Province, to show by his presence his appreciation of the College. (Applause.) He thought the benefits which this College conferred upon the Province could hardly be exaggerated. He explained to those who had received the prizes that it was to a very great extent a guarantee of success and prosperity in after life. The young men, however should not run away with the idea that there was not other qualities of as great a value to obtain in order to insure their success in life. (Applause.) They should take their President, Dr. Smith, as a model, a man who had by his force of character and other qualities been successful in the advancement of the College. In the Province of Ontario were hundreds of farmers, and the education received by the students of this college would be of great benefit to them and the prosperity of the country at large. One advantage of the

college would be that the educated and reliable professional man would take the place of the unreliable and dangerous "quack." (Applause). He had no doubt when the students went into the country they would do justice to the education they had received. (Applause.)

Mayor Boswell made a brief speech, in which he explained that he had received an anonymous letter stating that the veterinary students were in the habit of practising vivisection, but he was glad to find from the President of the College that this was untrue.

MONTREAL VETERINARY COLLEGE.

The examinations of this institution, which have been in progress during the last ten days, were concluded yesterday by the final oral examination by the Board of Examiners appointed by the Council of Agriculture, consisting of the following gentlemen: F. S. Billings, M. V.; Williamson Bryden, V. S., Boston, Mass.; C. J. Alloway, V. S., Montreal; J. A. Couture, V. S., Quebec; A. McCormack, V. S., Ormstown; Chs. Levespue, Berthier en haut, and Dr. George Leclerc. The following gentlemen were present and assisted in the exercises: Hon. G. Ouimet, Commissioner of Public Instruction, in the chair; supported by Prof. R. P. Howard, Dean of the Medical Faculty of McGill University; Prof. Baudry, representing Victoria University; J. M. Browning, Vice-President of the Council of Agriculture; Geo. Leclerc, Secretary, and Rev. Father Pilot, Mr. W. S. Blackwood, A. Sommerville and Casgrain, the Educational Committee of the Council, Prof. Osler, Prof. Daubigny, Dr. Sutherland Baker, and a large number of visitors.

Hon. Mr. Ouimet spoke of the good work done by the college, and proceeded to distribute prizes and diplomas, complimenting the recipients on their success.

The following students enregistered during the past session:

Wm. B. Abbey, New Bedford, Mass.; N. G. Blanchard, N. S., A. A. Keys, Ont.; W. G. Johnson, P. Q.; Geo. Sangster, Q.; W. P. Robins, Q.; A. W. Clement, Mass.; W. F. Scott, Q.; James Brodie, Q.; C. J. Davis, P. Q.; C. D. Bancroft, Q.; E.

P. Ball, Q.; B. A. Pomeroy, Q.; C. L. Morin, Q.; M. Piche, Q.; J. A. Bishop, Q.; R. W. Hopper, Q.; H. K. Durfee, Mass.; Charles G. Lamb, Mass.; Wm. Bell, Ont.; H. C. Kingman, Mass.; E. C. Crevier, Q.; A. Beauchamp, Q.; W. H. Klock, Ont.; John Magor, Q.; John Henry, Iowa; A. E. Cross, Q.; J. T. O'Connell, Q.; Mass.; C. Drouin, Q.; J. Labelle, Q.; T. G. Brosseau, W. S. Renner, O. D. Fortin, Q.; J. Lanctot, Q.; R. Lapointe, Q.; Fred. Paquin, Q.; H. Pilon; C. P. Drake, Q.; A. C. Rouif, Q.; P. A. Gindun; T. Beauchamp; W. P. Mayo Mass.; Ed. W. Hoare, Man.; W. S. Mahon, W. I.; J. W. Sparks, Mass.

The following students passed in the undermentioned subjects in order of merit :

Botany, Prof. J. W. Dawson, McGill College—Scott, Durfee, Lamb, Mahon, Sparks, Magor, Keyes, and Abbey.

Chemistry, Prof. Girdwood, McGill College—Blanchard, Kingman, Davis, Cross and Mayo,

Physiology, Prof. Osler, McGill College—Blanchard, Ball, Kingman.

Materia Medica, Dr. James Bell, Veterinary College—Kingman, Bancroft, Blanchard, Ball, Cross, Davis, Klock.

Anatomy, M. C. Baker, V. S., Professor—Brodie, Bell, Clement, Pomeroy, O'Connell, Henry, Duncan, Robins, Bancroft.

Practice of Veterinary Medicine and Surgery and General Pathology, D. McEachran, F. R. C. V. S., Professor—Bell, Clement, Brodie, Henry, Pomeroy, Duncan, O'Connell, Bancroft and Robins.

Physics, Professor Girdwood, McGill College—Lamb, Durfee, Scott, Hoare, Mahon Magor, Abbey, Keys and Sparks.

FRENCH CLASSES.

Botany, Prof. Roy, Victoria College—A. Beauchamp, T. Beauchamp, Brosseau, Fortin, Lapointe, Piche, Rouif, Turcot.

Physiology, Prof. Beaudry, Victoria College—Morin, Labelle.

Chemistry, Prof. Munier, Victoria College—Morin, Labelle.

Obstetrics, Prof. M. Daubigny, V. S., Veterinary College—Crevier, Paquin, Drouin, Pilon.

Materia Medica, M. Daubigny, Veterinary College—Paquin, Crevier, Dronin, Pilon.

Anatomy, M. Daubigny, Veterinary College—Paquin, Crevier, Drouin, Pilon.

Practice of Veterinary Medicine and Surgery, and General Pathology, M. Daubigny, V. S.—Paquin, Crevier, Drouin, Pilon.

The following candidates passed the examinations successfully and received the diploma of the College: Messrs. Brodie, Bell, Clement, Crevier, Henry, O'Connell, Pomeroy, Paquin and Robins.

PRIZES.

The following prizes were awarded English classes :

Seniors.—Best general examination in all subjects, silver medal, the gift of the Council of Agriculture, won by Jas. Brodie.

Practice of Medicine and Surgery—Valuable Microscope, the gift of David Morrice, Esq., won by Wm. Bell; 2d prize, A. W. Clement.

Anatomy—1st prize, Jas. Brodie; 2d, Wm. Bell.

Practical Dentistry—Instruments, the gift of Williamson Bryden, Esq., V. S., won by H. J. O'Connell.

Juniors.—Materia Medica—H. C. Kingman.

Anatomy—First prize, H. C. Kingman; 2d prize, M. G. Blanchard.

Practice of Medicine and Surgery—First prize, H. C. Kingman; 2d prize, E. P. Ball.

Botany—Gift of Prof. Dawson, won by W. F. Scott.

FRENCH CLASSES.

Best general examinations, silver medal, the gift of the Council of Agriculture, won by Fred. Paquin; 2d prize, valuable instruments, the gift of L. H. Massue, Esq., M. P., President of Council of Agriculture, won by E. C. Crevier.

Obstetrics—The gift of M. Daubigny, won by E. C. Crevier.

Anatomy—The gift of Geo. Leclerc, M. D., won by Fred. Paquin.

At the conclusion of the exercises, Mr. Billings, Boston, complimented the Dominion on having, in the Veterinary College of

Montreal, the only institution of the kind doing honest work on the continent, and they had reason to be proud of having a gentleman at its head who, more than any one else, combined in his teaching and daily life science and practice, and whose honest efforts were devoted to the elevation of the profession.

Professor McEachran was next called upon and took advantage of the occasion to compliment the students on their honest hard work during the session, congratulated the successful and sympathized with those who had failed in passing the severe examinations to which they had been subjected. He pointed out advantages of a high standard of education on account of the rapid progress of the profession. No profession holds out, said he, more brilliant prospects than did the one they now entered, but they must not expect to gain success without a struggle, but by perseverance they were sure to succeed. He wished them all success. He next paid a high tribute to McGill and Victoria Colleges, thanked those gentlemen who gave prizes, especially David Morrice, L. H. Massue, Williamson Bryden and others, also the examiners who had come long distances to assist them, the Council of Agriculture and the Government of Quebec for their valuable support, and those gentlemen who had assisted them at the examinations.

Professor R. P. Howard, Dean of the Medical Faculty of McGill, next addressed the students and graduates, complimenting them and their teachers on their success, and indicated that the Faculty, seeing the necessity for extending the field of study, had decided to add to their College a chair of comparative pathology, which they hoped soon to see accomplished. He could say for the Medical Faculty that they had always great pleasure in doing all they could to assist the Veterinary College, which was looked upon by them as one of the most useful institutions in the province.

Professor Beaudry next followed in a similar strain for Victoria College.

Dr. Osler, J. M. Browning and others followed in eulogistic remarks of the College and its Principal.

The proceedings terminated by a vote of thanks to Hon. Mr. Ouimet.

A meeting of the Veterinary Medical Association was held immediately after, when the diploma was conferred on Wm. Bell, Jas. Brodie, A. W. Clement, E. C. Crevier, Jno. Henry, T. J. O'Connell, B. A. Pomeroy, Fred. Paquin, Paul Paquin, also on Mr. F. S. Billings and Prof. Daubigny. —*Montreal Gazette*.

SOCIETY MEETINGS.

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The sixth annual meeting of the Alumni Association of the American Veterinary College was held in the lecture hall of the college, on February 28th, at 2 P. M. The meeting was called to order by the president, Dr. Miller. The secretary, Dr. Coates, then called the roll, and members representing the following classes responded: '77, '78, '79, '80, '81, '82 and '83. An amendment added to the by-laws was passed, fixing the initiation fee at one dollar. Dr. W. J. Coates was elected a member of the Board of Trustees, to represent the Alumni Association, for six years. The members of the class of 1883 were then admitted to membership. The following officers were elected for 1883: President, Dr. R. A. McLean, Brooklyn, N. Y.; Vice-Presidents, Drs. Geo. H. Bailey, Portland, Me., and D. J. Dixon, Hoboken, N. J.; Secretary, Dr. W. Horace Hoskins, Philadelphia, Pa; Treasurer, Dr. M. Bunker, Newton, Mass; Librarian, Dr. L. M. Crane, New York, N. Y. The newly elected president after taking his seat, appointed an Executive Committee for the ensuing year, as follows: Drs. Coates; Miller, Johnson, Michener, Dixon and Kemp.

Dr. Geo. H. Bailey furnished the Association amusing records of evidence given to the courts of Maine, on Roaring, by one of the practitioners of veterinary surgery in that State.

DR. W. J. COATES, *Secy. pro tem.*

DR. W. HORACE HOSKINS, *Secy. elect.*

In order that the secretary of the Alumni Association may be enabled to compile a history of the same, to be presented at the next meeting, he earnestly desires that each graduate of the

school and member of the Association furnish him with their present address, that they may be conferred with, to further this important work.

W. HORACE HOSKINS, *Secy.*,
254 S. 15th St., Philada., Pa.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, April 10th, 1883, at eight o'clock, P. M. The President, Dr. Liautard, being absent, the meeting was presided over by Vice-President Dr. Coates. The following gentlemen responded to the roll-call: Drs. Lockhart, Burden, L. McLean, Coates, Michener, Crane, Leighton and Devoe.

The minutes of the last meeting were read and approved. Dr. Michener read a paper on intestinal diseases, and made strong objections to the use of trocar and cannula in cases of tympanitic colic in horses, which provoked a lively discussion amongst the members present.

Dr. Crane, in answer to a query, said that he had punctured in as many as one hundred cases of flatulent colic, and every one of the cases were relieved by the operation.

Dr. Lockhart's success in use of trocar and cannula not good; believes in administering internal remedies, as he has found that his cases generally result favorably by so doing.

Dr. Burden favors the operation, and recites a case where the animal was punctured nine times, and each time relieved, as there was a flow of gas in large quantities succeeding each puncture.

Dr. L. McLean says that in tympanitic colic some remedy should be given to arrest the fermentation and accumulation of gases, and he has given carbolic acid, and never hesitates to puncture, and has had no bad results. Has punctured cases at night and sent them to work the next morning.

Dr. Michener advises the use of bi-carbonate of soda, as an antiseptic to arrest the fermentation, and also says that indiscriminate puncturing is wrong: one of the bad results being abscesses

in the muscular tissues. Has had but one death in fifty cases, and did not puncture, and thinks use of trocar and cannula should be a dernier resort. Dr. McLean replied that effects must be relieved, and it is not good practice to wait until the last stages, but that puncturing must be done early to have good results.

A vote of thanks was extended to the essayist.

A communication was read from Dr. Liautard, presenting his regrets to the Association for his inability to be present.

The Board of Censors reported favorably on the names of Drs. Kay and Critcherson, Outerbridge and Burget, who were proposed for membership at the meeting of March 13. There being no objections, the Secretary cast a ballot for these gentlemen, and they were elected to membership.

Dr. Coates proposed the name of Dr. S. H. Johnson for membership, which was referred to Board of Censors.

Dr. Coates was appointed essayist for the next meeting, and will read a paper on broken wind.

Motion to adjourn was carried.

W. S. DEVOE, *Secy.*

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The monthly meeting of the Keystone Veterinary Medical Association was held on the evening of March 23d, 1883. The President, Dr. Miller, presiding. Reports from members showed that a bill was now before the Legislature of the State, to confine the practice of veterinary surgery to graduates, but upon examination it was found to be the same bill that had been before the House on several different occasions, and to be for the benefit of the members of the Penn. College of Veterinary Surgery, a school existing at present only in name. Dr. A. Glass being called upon for his essay, presented one relating to purpura hemorrhagica, and referred especially to the successful use of spirits of turpentine in several cases. In the cases referred to, where not a very great elevation of temperature was present, large and oft repeated doses were not followed by any irritation of the urinary organs.

Dr. Miller reported a very interesting case of total paralysis, resulting from a fracture of the parietal bone, with partial dislocation of the second intervertebral articulation of the neck, the result of a fall and complete somersault. After reports of other cases from the members, the meeting adjourned.

W. HORACE HOSKINS, *Secy.*

Cerebro-spinal meningitis has broken out in Philadelphia and Camden, N. J., to some extent, the writer having had several cases within the past few weeks. Those seen were either along the river front or down in the lower parts of the city, where surface drainage only existed.

W. HORACE HOSKINS.

CORRESPONDENCE.

A CASE OF FARCY.

MORRISON, WHITESIDE CO., ILL., }
March 20th, 1883. }

Editor Veterinary Review:

MY DEAR SIR,—As you thought that my last feeble effort as a contribution to the AMERICAN VETERINARY REVIEW was worthy of a place in the last volume, I will now send another case that was of much interest to me at the time, on account of its occurring as it did—a case diagnosed as *farcy*.

The case as follows: As I was passing through a neighboring pasture on one of my visits, I noticed that one of the horses pasturing in the field was very bad with the strangles; a very large abscess, formed under the jaw, was discharging thick yellow pus, streaked with blood. The animal affected was about fifteen years old, with no former disease to trouble her. The other horses in the field were from one to three years old—six in number. I was interested in the affected animal, as it was near my own place. I stopped as I went through the pasture and examined the mare, made my own prognosis, and notified the owner to take care of his sick animal so that none of the other colts might get inoculated with what I pronounced malignant virus; but the owner thought

it was useless to care for the affected one, and let it remain in the pasture. It being in the month of July, when flies are bad, horses naturally collect in a bunch to ward off any fly that may trouble them. In this case the mare with the strangles would extend her head over the neck and back of the other colts, and rub her discharging abscess well into the skin of those with whom she came in contact. The result was as follows: About one week after I was called to see the owner's best three year old colt, for what he thought a simple case of stranglès. On examination, I found the lymphatic system in a horrid state; the vessels corded, and the glands swollen to form what eventually proved to be farcy buds. I pronounced it a case of farcy, and said treatment was useless, and also dangerous to himself and other horses. But he was reluctant to yield, and urged treatment to try the effect of remedies. I finally yielded to his entreaties, and a hospital was made, isolated and away from all other buildings. The colt was put in the stable prepared for him, and all ulcers that were discharging cleansed, with the precaution of a sponge tied to the end of a stick to prevent any unnecessary contact of hands with the parts affected. The colt being reduced, stimulents were given.

On my visit the next day, the colt seemed to feel better, but the pulse was weak, countenance dull, the ulcers or buds were discharging a thick and glutinous substance adhering to the hair.—Continued same treatment.

Two days after the owner came to my place and requested me to go and see the colt, as it was very bad to attend to on account of the odor emitted. When I reached the place, I threw the door open to let in fresh air, for the stench was most horrid; and looking at the animal it was a picture of misery, covered all over with ulcers discharging, heavy nasal discharge, limbs swollen and much emaciated. I ordered the colt destroyed at once, as the risk to treat further was hazardous. Consequently the colt was led about ten rods off to the burial place, and it was with great difficulty that it could reach the spot, dropping down from exhaustion at the place. A slight tap with the poll ax put him out of all further misery.

The interesting point in the above case is—was that case of farcy

superinduced by the putrid discharge from the abscesses of the mare affected with strangles, rubbing on the neck and back of the colt, so as to poison with the malignant virus flowing from the submaxillary abscesses? One other point is, that the mare recovered from her complaint, and it left no bad symptoms in its track; also that the other five colts was not affected with either strangles or farcy.

From your long experience with diseases, you will be able to solve the problem. I have been rather lengthy, but you will be able to glean enough to get my case.

Your most ob't serv't,

J. B. GALT.

[It is probable that the colt did not have farcy proper, but a complicated form of malignant strangles accompanied by septicemic symptoms.—ED.]

TWO HUMAN LIVES SACRIFICED ON THE ALTAR OF IGNORANCE.

George Conaway was taken sick on the 4th of March; symptoms strongly simulating catarrhal fever, followed by copious discharges from the nose, swelling over the frontal sinus of the right parotid gland, finally formation of postules and bullæ—distributed over the whole surface of the body; died March 22d, aged seventeen years and a few days.

Wellington Conaway, father to George, taken sick March 23d. Complained of pains in the chest, the swelling of the submaxillary glands, discharge from the nose, formation of pustules, etc.; died April '2d.

Presumably the father took the disease from the son, having been in constant attendance on him during his sickness. Four physicians examined each case when the pustules began to appear, and diagnosed it malignant erysipelas. On the 1st of April five physicians met in consultation, and then agreed to call it "equinia."

I notified one of the physicians on the 13th of March (two days after the boy was taken sick), of the existence of glanders among Mr. Conaway's horses, putting him on his guard in reference to the probable ailment of the son.

On the 2d of April I examined the horses on Mr. Conoway's farm, and condemned six out of fifteen head as having glanders. On the 6th, accompanied by J. J. Reiners, V. S., of Morrison, Ill., made a second examination and found one more horse showing evidences of the disease. Two of the animals were shot immediately, the remaining five were placed in quarantine, awaiting the action of the town Board of Health. The statutes of our State do not contain the word glanders. We have not one word of law in relation to the disease.

Mr. Wellington Conaway, thirteen miles north of Sterling, was a so-called "hoss doctor;" he cured all cases of nasal gleet; his library consisted of Dr. Stewart's book; his knowledge of materia medica did not extend beyond an infusion of tobacco and stramonium. He was totally unable to distinguish glanders from nasal gleet, consequently had one or two horses die each year of the former disease.

One of the neighbors told me that one of Mr. Conaway's dogs was suffering from boils and a discharge from the nose for several months last summer, and finally died. Comment is unnecessary.

M. R. TRUMBOWER, V. S.

STERLING, ILL., April 9th, 1883.

NEWS AND SUNDRIES.

QUARANTINE REGULATIONS will go into effect at New Orleans from May 1st.

HOG CHOLERA has caused the death of four to five thousand dollars worth of swine near Providence, R. I.

PETITION.—The New York State Dairymens' Association has petitioned Congress to appropriate \$5,000,000 to stamp out the lung plague among cattle in the United States.—*Farmers' Review*.

FOOT AND MOUTH DISEASE.—Severe ravages of this disease in England, and which are growing worse day by day, have created an increased demand for American cattle.—*American Cultivator*.

DIPHThERIA IN FOWLS.—Dr. L. Roth, of Kitzingen, observed

an epidemic of diphtheria in a flock of hens. It was caused by the slops from a room in which two children had been sick with diphtheria, being thrown upon the dung heap in the yard where the fowls were kept.—*Medical Record*.

PRECAUTION NEEDED.—The recent discussion in the agricultural papers concerning the sale of sheep at the Fat-Stock Show in Chicago, said to have been affected with foot-rot, shows pretty clearly the dangers attending these stock shows, and the means they may prove for spreading contagious diseases. No such shows should admit animals of any description without a veterinarian's certificate attesting their perfect health.

INOCULATION OF SCARLATINAL VIRUS AS A PROPHYLACTIC AGAINST SCARLET FEVER.—Dr. Stickler of Orange, N. J., is making some investigations in the use of equine scarlatinal virus to test its value as a prophylactic against human scarlet fever. The results will soon be published.—*Medical Record*.

AN INSTANTANEOUS LIGHT.—Such in a word is the unique apparatus on exhibition at the rooms of the Portable Electric Light Co., 22 Water Street, Boston. It occupies the space of only five square inches and weighs but five pounds, and can be carried with ease. The light, or more properly lighter, requires no extra power, wires or connections, and is so constructed that any part can be replaced at small cost. The chemicals are placed in a glass retort; a carbon and zinc apparatus, with a spiral platinum attachment, is then adjusted so as to form a battery, and the light is ready. The pressure on a little knob produces an electric current by which the spiral of platinum is heated to incandescence. The Portable Electric Light Company was recently incorporated, with a capital of \$100,000, under the laws of Massachusetts. The usefulness of the apparatus and the low price (\$5) will no doubt result in its general adoption. Some of the prominent business men of the State are identified with this enterprise. In addition to its use as a lighter, the apparatus can also be used in connection with a burglar-alarm and galvanic battery.—*Boston Transcript*.

INTRODUCING THE PASTEUR SYSTEM.—Dr. D. E. Salmon, D. V.M., has for several years devoted much time and experiment to the study in which Pasteur has deservedly achieved so high a reputation the world over—the prevention or amelioration of contagious diseases among live stock, by inoculating sound animals with a form of the virus of the disease, that will prevent a fatal attack subsequently, without endangering life from the mild attack produced by the inoculation. The method adopted by Dr. Salmon for lessening the virulence of the virus so as to fit it for inoculating, or rather vaccinating, purposes, differs considerably from the “attenuating” system of Pasteur, and we are glad to learn that the Doctor is to have an opportunity of thoroughly testing its efficiency. He has been summoned to Washington by Commissioner Loring, and is about to inaugurate a series of experiments in his method for the Department of Agriculture.—*Rural New Yorker*.

THE RESULTS OF SECTION OF THE VAGUS UPON SHEEP.—Ellenberger has made some very interesting experiments to determine the effect of section of the pneumogastrics upon sheep. He found that after cutting the pneumogastric on one side only, no disturbance of heart, lungs, or stomach was observed. The general matter was not impaired. Ten weeks after the section the animals were killed. There appeared to be some thinning and atrophy of the muscular wall of the third and fourth stomach in the animal whose right vagus was cut, and a similar change in the first and second stomach of the animal whose left vagus was cut. When both vagi were cut the animals died in from twelve to twenty-six hours, except in one case, when life was prolonged for sixteen days. Death resulted in all cases from suffocation by stopping of air-passages. There was constantly observed: complete paralysis of the œsophagus, partial paralysis of the first and second stomachs, increased heart-beat up to 160 per minute, labored irregular and at first slower (12 to 16 per minute) respiration, and inability to regurgitate and chew the cud. It appears that the vagus sends motor nerve-fibres to the first and second stomachs, but that the third and fourth stomachs are enervate independently. The con-

stant development of *tympanitis* as a result of paralysis of the vagus may have some practical significance.—*Journal of Com. Med.*

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Repertorium der Thierheilkunde, Revue fur Thierheilkunde und Thierzucht, Oeslerreichische Monastschrift fur Thierheilkunde, Archiv fur Wissenschaftliche und Practische Thierheilkunde, Veterinary Journal, Veterinarian, Clinica Veterinaria, Recueil de Medecine Veterinaire, Archives Veterinaires, Journal de Zoötechnie, Revue d'Hygiene, Annales de Bruxelles, Revue Dosimetrique, Gazette Medicale, Revue Scientifique, Presse Veterinaire.

HOME.—Medical Record, Turf, Field and Farm, Spirit of the Times, American Agriculturist, Country Gentleman, Breeders' Gazette, National Live Stock Journal, Rural New Yorker, PrairieFarmer, Druggists' Circular.

JOURNALS.—Ohio Farmer, Cultivator, Farmers' Review, Illustrated American Home, Chicago Horseman, College Clinical Record, Medical Herald, Pratical Farmer, The Planet, Home Farm, Nebraska Farmer, New England Homestead.

PAMPHLETS.—The Bacteria, Trichinæ.

COMMUNICATIONS.—Wm. Thiele, C. H. Gollatz, A. W. Hoover, M. R. Trumbower, D. Salmon, N. S. Townshend, W. H. Hoskins, Prof. A. Smith, J. B. Galt, R. B. Coreoran, A. A. Holcombe, M. Bunker, W. Critcherson, J. Hopkins, W. Devoe.

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Post Office orders to be made payable to A. LIAUTARD, Editor, through Station G. New York.

As we go to press on the 20th of the month, papers for publication ought to reach us before or on that date.

AMERICAN VETERINARY REVIEW,

JUNE, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 54.)

C. SUB-HORNY QUITTOR.—This is the inflammation of the superior part of the keratogenous apparatus, of the cutidura; or even of the superior parts of the sensitive laminae. This quittor is, therefore, located under the horny box, and is more like the cartilaginous kind, which old hippiatrics, and especially Sollysel and Garsault, describe with it. It generally takes place on the quarter, and more seldom at the toe, or at the mammæ. Sometimes it is observed at the heels, but it is then of small consequence.

I.—*Symptoms*.—The lameness is very great. The animal walks on three legs, and there is strong reactive fever, due to the excessive pain,—this form of the disease being more painful than the others, in consequence of the pressure of the horny structure upon the inflamed tissues. At the origin of the nail a warm and very painful tumor is found; the foot is hot and the hairs staring on the site of the injury. If the disease has existed for some time, there is a separation of the hoof at its origin, due to a sero-purulent exudation, and under the hoof suppuration and mortification of a more or less extensive portion of the coronary band, or

of the laminae will be found. The suppuration which there exudes varies, being in rare instances blackish, as it is usually found in traumatic injuries of the hoof; or, again, it is white and unctuous, with the odor of decaying cheese; while more commonly it consists of a bloody or greyish matter, mixed with pus.

If the mortified portion is not deeply seated, so that the slough can take place readily, the quittor is quite simple, since as soon as it has dropped off there is a well marked improvement. The pain then ceases almost instantaneously, and the wound at once progresses towards cicatrization. But it is not rare, even when the mortification is somewhat superficial, to find the sub-ungueal suppuration extending so that the matter runs under the hoof, producing at times a more or less serious fistula, or a separation of the sensitive and insensitive laminae. Girard says it has been seen to extend down to the sole, and to separate it from the velvety tissue. The deep sub-horny quittor may be complicated, forward, with necrosis of the tendon of the extensor muscle; with the inflammation of the joint with caries of the os pedis, and even to assume the cartilaginous form of the disease by its extension to the cartilages of the foot.

After the recovery of the sub-horny quittor, if the coronary band has been mortified in its entire depth, the foot may present permanent longitudinal fissures, or seams, or transversal grooves, presenting evidences of the existence of a cicatricial tissue when the quittor was in progress.

II.—*Prognosis*.—The gravity of this quittor depends upon the depth of the disease. When superficial and affecting only the surface of the tissue, it is easy to cure, but if deeply seated it is more serious, on account of the possibility of complications.

III.—*Etiology*.—Bruises and violent blows are the ordinary causes of sub-horny quittor. It is commonly due to overreaching, or to the wounds occurring when animals are wearing long caulks, as in winter. The irritating effects of frozen mud has also been admitted as a cause.

IV.—*Treatment*.—The superficial quittor requires a simple treatment. Emollient baths and maturing poultices are then indicated. It is a good plan to thin the wall with the rasp or

the sage knife over the whole extent of the furuncular tumor to a height of about two fingers. Compresses of chloroformed oil, while it alleviates the pain, are also indicated to soften the wall. It frequently becomes necessary to puncture the tumor, but we prefer to cauterize it with a pointed iron, following the canterization with a poultice of honey with Venice turpentine or camphor. Some authors recommend astringent baths, as oak bark, or of sulphate of iron. It is often the case that after some interval following sloughing of the *bourbillon*, the wound continues to discharge a liquid secretion, which is an evidence that there is a tendency to accumulation of matter towards the lateral cartilage, or under the wall, in the laminae; or that there is some carious spot existing. In the first, if probing horizontally, a cavity is detected, it is convincing evidence that a cartilaginous quittor is in course of development; in the second case, the pressure and collection of the matter increases the inflammation of the laminae, separates the wall, and complicates the disease, necessitating the *operation of the sub-horny quittor*.

The removal of the portion of the hoof which covers the lesion, must, however, include more than the purulent center, so that the diseased tissues may be well exposed and the suppurative process detach them readily. This removal, always proportioned to the internal lesions, is made either lengthwise, following the direction of the horny fibres, or crosswise. In that case, it will attack only a portion of the wall towards its point of union with the skin. This latter method, it is true, requires less cutting, but it has several quite serious objections and often necessitates a second operation. Even in cases where the growth of the granulations can be controlled, and where a good return of the horse is obtained, the hoof only recuperates its perfect integrity by the slow growth downwards of the wall. In some circumstances the operation is completed by the removal of a portion, or even of the entire mass of the sole, when it is separated from the velvety tissue.

The removal of a portion of the wall must be accomplished in the manner which will be indicated for cartilaginous quittor, in carefully avoiding the injury of the coronary band and of

the podophyllous tissue. The diseased tissue being exposed, all that is of bad appearance is removed, the carious portion being freely taken off. An ordinary dressing of oakum with diluted alcohol, or any other drug, kept in place with a light shoe or slipper, entire or truncated, as the case requires, is then applied.

As for all wounds of the foot, the dressing needs only to be changed when the pus accumulated under the oakum or other peculiar conditions indicate it. It is true that changing the dressing is an effective means of cleansing the wound, but it has also the inconvenience of also irritating it, and especially at the beginning may tend to interrupt the natural process of repair. It is of advantage, after the first dressings, to change them as infrequently as possible. In this way hemorrhages, which may always be looked for, are avoided. This is a point of the first importance. It has been proved that even in operations where a portion of the wall has been removed, a dressing left on for from fifteen to twenty days without removal, was followed by rapid recovery, the new hoof growing under the oakum without supuration. It is useless to probe or wipe out the surface of the wound. On the second dressing, that is, after a few days, the parts begin to be covered with numerous white points, which are so many rudiments of hoof. These, which at first are soft, white and isolated, gather together by degrees, at first unite into a thin layer, soft and yellowish. This becomes hard and thick; it is the hoof secreted by the laminae, which, little by little, unites with that coming from the coronary band. Excessive granulations or proud flesh are removed in the ordinary way.

D.—CARTILAGINOUS QUITTOR.—*Hufknorpelfister*, (German)—(improperly called *sub-horny quittor* by Lafosse, Jr.; *coronary quittor* of Vitet; *fibro-chondritis* of the third phalanx, by Vatel; *sub-horny cartilaginous quittor* of Girard; *quittor proper* of Delwart). This form of quittor is peculiar to solipeds, they being the only animals which have fibro-cartilage on the os pedis.

These fibro-cartilages are two pieces, which, with the planar cushion, complete the os pedis and form the base of the heels, each representing a piece flattened sideways, parallelogram in shape, and extending posteriorly to the coffin bone. Their external

face is convex and pierced with foramina for the passage of veins and slightly overlays the surface of the bone of the foot. It is separated from the skin by a very rich vascular plexus. The internal face, concave, is hollowed by vascular grooves and covers, forward the articulation of the foot and the cul de sac of the synovial sac which protrudes between the two lateral ligaments of that joint. Downwards and backwards it is united to the plantar cushion, either by continuity of tissue, as near the inferior border, or by fibrous bands running from one to the other. The superior border, either convex or straight, is thin, and separated from the posterior by an obtuse angle in front of which it presents a deep notch for the passage of the blood vessels and nerves. The inferior border is attached, forward, to the basilar and retrosal processes of the os pedis. Behind this it reflects inwards, to continue to the inferior face of the plantar cushions. The posterior border, oblique, backwards and downwards, is slightly convex and unites with the preceding. The anterior border, oblique in the same direction, is more intimately united to the anterior lateral ligament of the articulation and can be separated from it only by artificial dissection. It sends upon this ligament and upon the anterior extensor of the phalanx, a fibrous extension, which unites with that of the opposite side.

In their structure the fibro-cartilages comprehend a mixture of fibrous and cartilaginous tissue, a mixture which is far from being homogenous and even in the various parts. The more it is examined forwards and near the base, the more its substance is seen to resemble that of cartilages proper, being white, flexible, brittle, and homogenous. Towards its posterior part it loses its characters of homogeneity, becomes less brittle and presents in its thickness a greater amount of fibrous texture. More posteriorly again, the fibro-cartilaginous structure is more marked. By close attention it seems to show cartilaginous nuclei, isolated, and surrounded with an entirely fibrous substance; and again, at its posterior extremity it becomes fibro-greasy with much cellular tissue and unites with the plantar cushion. The vitality of the cartilage is in inverse ratio with its density and consequently is greater in its posterior part than towards the base and its anterior

extremity. This fibro-cartilage may easily and more or less completely become ossified; old horses are those which most commonly present this condition, and draught horses are more subject to it than those used to the saddle. It may assume various forms. At times it occupies the entire extent of the cartilage, and others only at its base; sometimes the external surface is ossified, while the internal remains in its normal structure; then again the ossification exists only anteriorly while the posterior is cartilaginous, and it more rarely happens that the process consists in bony lamellæ, which, starting from the base, spread towards various points of its circumference.

These fibro-cartilages are generally more developed in the anterior than the posterior extremities. They also present, in one foot, this slight difference, that the internal stands a little higher than the external.

Cartilaginous quittor is a serious affection characterized by the partial caries of one of the fibro-cartilages; it is a partial gangrene whose character is to slowly spread into the cartilaginous structure upon which it starts. To be treated with success it requires a very regular attendance, and often an operation, which consists in the removal of the cartilage. Sometimes this operation is indispensable, and its study is interesting, especially because, though not as commonly performed as at the beginning of this century, it is one which requires a high degree of surgical skill for its success.

(To be continued.)

ON THE PRODUCTION OF IMMUNITY FROM CONTAGIOUS FEVERS BY INOCULATION WITH DILUTED VIRUS.

BY D. E. SALMON, D.V.M.

(Continued from page 70.)

Interesting and important as the results I have detailed evidently are to the veterinarian and the agriculturist, they would be more or less out of place in this journal, were it not for the probability that the germs of the contagious fevers in men and

animals are very closely related organisms, that the mysterious condition of the animal body, which we call insusceptibility, is comparable from all points with the insusceptibility of mankind, and that the methods by which we can grant immunity to animals are equally applicable to the human subject. From this standpoint it at once becomes a matter of importance to learn if the diluted virus of other contagious fevers of animals produces either a milder affection or a harmless local irritation also ending in immunity; in other words, is our method of vaccination, with a small number of very virulent germs, generally applicable to the various diseases of this class?

In April, 1881, M. Chauveau* announced the result of experiments made with charbon virus, by diluting virulent blood until each cubic centimeter contained from fifty to one thousand rods of the *bacillus anthracis*, and injecting this dose directly within the jugular vein. He did not state how the number of germs was estimated, and one would suppose that this would be rather a difficult matter to accomplish with any degree of certainty, unless, indeed, an apparatus similar to that used for counting blood corpuscles was at hand. M. Chauveau believed that by introducing the germs directly into the blood-stream there would be less danger of a fatal result—a supposition which may be contested from the results of my experiments. In his first experiment four sheep received a dose of one thousand bacilli each. All died of charbon. In the second experiment, two sheep received about six hundred bacilli each. One died of charbon; the other did not show the least symptom of disease. In the third experiment, one animal received fifty and the other one hundred bacilli. To the liquid containing the larger number one per cent. of carbolic acid was added. No effect was produced by the carbolized virus; the other animal had a very slight fever of short duration.

The animals remaining from the second and third experiments, and two others, in all five sheep, received, seven days after the third experiment, a dose containing about one thousand bacilli. All died of charbon; but the one which had showed slight

* Comptes Rendus, xcii., 1881, p. 844.

symptoms of fever in the third experiment did not die until the seventh day. The death of this animal was due to a bacterial meningo-encephalitis—being the usual result of inoculating partially insusceptible sheep with large quantities of virus. It seemed, then, that this one animal had acquired a certain degree of immunity.

In the fifth experiment, five sheep received about two hundred and fifty bacilli each. All recovered after presenting slight and transient symptoms of fever. Reinoculated, six weeks later, with strong virus, four resisted perfectly, while a single one died. In this experiment, the first virus used was taken from a rabbit which had been dead several days, though perfectly preserved because of the cold weather. We know, however, from Pasteur's experiments, that when the bacilli are preserved, either at so high or so low a temperature that they cannot form spores, they rapidly lose their virulence, and, as in this case the strength of the undiluted virus was not tested, there is some reason to doubt if the dilution should receive the entire credit of the results.

In the same communication, M. Chauveau records an observation with the virus of *charbon symptomatique*, which corresponds to the black quarter of this country, and is entirely distinct from charbon. This virus, though one of the most active known, may be injected into the veins in considerable quantity without causing death; but a very much smaller dose in the connective tissue infallibly destroys cattle and sheep. In December, 1880, ten sheep had been collected, which, from many preventive inoculations with charbon virus, had obtained a very complete degree of immunity from this disease. Before receiving their final test, they were to have a last preventive inoculation with one cubic centimeter of liquid extremely rich in bacilli. By mistake this liquid was filtered through a cloth that had served in preparing the virus of *charbon symptomatique*. This cloth had been washed, but a sufficient quantity of virus remained in it to produce the disease in each of the ten sheep. The virulent liquid was drawn with a syringe from a high and narrow vessel, so that for each animal it came from a different depth. The result was in proportion to this depth, being mildest with the first and most severe

with the last. The first four recovered, while the remaining six died. A month later, an inoculation was made in the other thigh of those which had recovered, with a considerable quantity of black quarter virus. The resulting symptoms were very mild, but not equal with all. Those which suffered the least by the former inoculation were more intensely affected by the latter.

The observations of M. Chauveau are undoubtedly very important if we look upon them as confirming the doctrine of attenuation by dilution, but of themselves they are plainly insufficient to establish this doctrine with either of the diseases with which they are connected. With charbon all the indications must be drawn from the last experiment, and this was made with virus of doubtful activity. The observation with black quarter virus was not a premeditated experiment, there was no intention to inoculate with this virus, and, consequently, it cannot carry the weight of a genuine experiment. At the same time, viewed in the light of my results with fowl cholera, these experiments with charbon and the observation with black quarter are sufficient to show that these viruses are subject to the general law which my experiments were first to demonstrate.

Still more recently, M. Pench,* Professor at the Toulouse Veterinary School, has made experiments in the same direction with the disease known as sheep-pox. This is a form of variola peculiar to sheep and extremely fatal to these animals. It has been combatted in the north of France by inoculation, but in the southern departments the losses from this operation were so nearly equal to those caused by the spontaneous disease that the practice has been about abandoned. As the danger in this disease is principally due to the eruption, and as M. Chauveau in his experiments with vaccine had granted immunity to cattle by hypodermic injection of virus without producing any specific eruption, M. Pench conceived the idea that by reducing the number of germs by dilution, and injecting the liquid beneath the skin, a similar result might be obtained with sheep-pox. His recorded experiments have been made with seventeen sheep. Eight were inoculated

* Recueil de Médecine Vétérinaire, 1882, p. 977.

with a dilution of 1 to 20, four with a dilution of 1 to 30, and five with a dilution of 1 to 50. The inoculations with the strongest virus (1 to 20) produced a general eruption, which followed the regular course. But with the weakest virus, injected in half the quantity, the effect was less marked. With five sheep inoculated with eight centigrammes of this dilution, a single one presented a very mild secondary eruption, three had a pustule at the point of inoculation, the fifth had only a slight swelling at this point. All acquired immunity.

These experiments, like Chauveau's, are not sufficiently numerous to demonstrate a great principle, but they are one more and a very important contribution to this end. In the methods of both of these gentlemen, there is much to be desired before they could be applied in practice, especially to such virulent diseases as fowl cholera, with which a single drop of a dilution of 1 to 40,000 sometimes causes death. The strong virus which they use varies greatly in strength, it contains coagula and animal *debris* which prevents its even diffusion; it is in many cases difficult to obtain when desired. By my method the virus is obtained of a definite strength; it may be preserved for an indefinite length of time in cultivation tubes, and in a short time can be increased to any desired quantity. These are points which, especially in endeavors to control the diseases of mankind, must be considered of the greatest importance.

In presenting a new method for attenuating the active viruses of contagious diseases it is, of course, desirable to know how it compares practically with the method of M. Pasteur which has recently received so much attention, and which, in spite of adverse criticism, must be accepted as a remarkable advance in medical science. It has not been unusual for men who stand quite high in scientific circles to speak of Pasteur's method as though the mitigation in this case was produced by dilution; others of equal eminence have told us that it consisted in passing the virus through a large number of cultivations. In reality, it is neither the one nor the other. Pasteur's first attenuation was made with fowl cholera virus, and his method with the later ones has only been changed to suit the peculiarities of the virus of

other diseases. With fowl cholera a cultivation of the virus was made in sterilized broth, the flask being arranged to admit filtered air. This was set aside for an indefinite period, varying from five to eight months, during which time the attenuation occurred. A second cultivation, made from this first one after this indefinite period, was the vaccinal virus. During this time the activity of the germs is gradually lessened, but the same degree of attenuation does not always occur in the same length of time; and when preparing fresh vaccine the degree of attenuation must be determined by inoculation experiments.

When the vaccine is once obtained it may be preserved for a considerable time by frequently renewing the cultivations of it, but this cannot be done indefinitely, as Pasteur at first announced. This vaccine gradually loses its strength, no matter what precautions are observed; consequently it must from time to time be renewed, the setting aside for from five to eight months, and the testing of the activity, which involves much trouble and expense, to say nothing of the skill required, all must be gone over again as at first. What makes this still worse, there must be two vaccines, one stronger than the other, because the weaker vaccine is too inactive to grant complete immunity.

With charbon virus, the attenuation occurs more rapidly, being complete in less than eight days for the weaker vaccine; but here there is also an obstacle to its preparation. The virus must be kept at a constant temperature of 42° to 43° C. to prevent the formation of spores. If spores are formed there is no attenuation, and the vaccine obtained will produce fatal effects. Koch and Klein have each attempted to show that virus could not be attenuated in this way; but they undoubtedly failed by allowing spores to form either by variation of the temperature, by the liquids being too shallow, or from neglecting to supply some other required conditions. These experiments, while they cannot overthrow Pasteur's general conclusions, are sufficient to demonstrate the difficulties and the uncertainties of the method when attempted by others less skilful than the originator.

With this method of attenuation by dilution, as I have developed it, most of these difficulties are avoided. The prepara-

tion of the standard virns and its dilution can be accomplished, with fowl cholera at least, within twenty-four hours from the time the particle of blood which originates it is taken from the affected animal. The stronger the virus the longer will it retain its full activity, and, hence, the unmitigated virns is in far the best condition for preservation, and the dilution can at any time be made in a few minutes.

Again, the method of Pasteur cannot well be applied to human diseases, because it requires too many experiments to learn the degree of attenuation. In some cases the attenuation does not occur until a few hours before the death of the virns, while in other cases it may be weeks or months before. So that, in applying it to a new disease, there are no indications except those furnished by inoculation experiments. On the other hand, if we dilute we know that we attenuate. If we introduce but ten or twenty germs of almost any disease the probabilities are that the effect would be very slight; if such an inoculation were unsuccessful the number could be gradually increased. Surely when many people are exposed to a deadly plague, it would not be impossible to pursue this class of investigations. Of course, I only mean the above remarks to apply to those non-recurrent fevers from which immunity may be acquired within a few days or weeks.

Whether I am right or wrong in considering that this method of preventive inoculation may, under certain circumstances, be used advantageously in controlling the plagues of mankind, it seems to me that the method by dilution has some incontestable advantages over the method of Pasteur. I may summarize these as follows: 1. The virus is obtained by a definite strength. 2. It may be preserved in the condition in which it retains its activity the longest time. 3. The attenuation requires but minutes instead of weeks or months. 4. The experiments to learn the proper degree of attenuation are less dangerous to the individuals operated upon. 5. These experiments once made, it is not necessary to repeat them with every fresh lot of virus. 6. One virus and one successful vaccination are all that is required. 7. The

amount of virus needed is many times less than with other methods. Certain disadvantages will doubtless be revealed by the experiments of the future, but their importance cannot be foretold.

I should not be surprised if greater advances are made by the investigations of the future, for the prevention of contagious diseases, than have been accomplished in the past; possibly vaccination in all forms may be discarded, but at present the question is fairly before the medical profession—Shall we vaccinate with a large number of comparatively inactive germs, or with a small number of those which retain their greatest virulence?

The solution of such a question can hardly be made from theoretical considerations; it may even require investigations which include a large number of individuals, scattered over a considerable territory and embracing a variety of diseases; but, with the principles upon which these methods depend for their success once understood by our scientists, it cannot be long before we have the elements for a complete and satisfactory conclusion. At the same time it is not to be forgotten that the method by dilution, because of the little time required to prepare the virus, might often be resorted to when the other would be impossible.

In conclusion, I would call attention to the following points of this communication, which are believed to be original:

First.—The method of producing a virus of standard strength.

Second.—The fact that germs which usually multiply throughout the whole body may be compelled to limit their reproduction to the point of inoculation by reducing the number inserted.

Third.—That this local multiplication grants an immunity from the disease in the future.

Fourth.—That a very small number of germs may be introduced into the tissues with impunity, and are not able to produce the least effect, either general or local.

TEXAS FEVER.

NOTES OF AN OUTBREAK OF THAT DISEASE AMONG CATTLE.

BY M. R. TRUMBOWER, V.S.

September 24th, 1882.—I was requested by Mr. Gleason, of the firm of Martin & Gleason, dealers in cattle, to go with him to examine several animals belonging to them which had been found dead in the field.

The first one examined was a two-year-old steer; found him lying on his right side; had probably been dead six hours; ground indicated no ante-mortem struggles; feces passed, thin, green, and well digested; no evidence of bloating, nor of decomposition. Removed the left shoulder, cut through the ribs at their superior articulations, and removed entire the wall of the chest and abdomen, exposing the internal organs to view. The lungs were found healthy, with the exception of a slight emphysematous condition and trifling hypostatic congestion of the posterior lobe of right side; pericardium of a normal appearance contained about an ounce of bloody colored serum; heart pale, flabby, and of normal size; externally the apex, right side, and both auricles presented slight ecchymosis; the left ventricle contained a small quantity of thin watery appearing blood, but no clot; the columna carnea were studded over with ecchymosis of a bright purplish tint; the right ventricle contained a small blood clot; the valves, chords, and columns were healthy. Examining the abdominal organs, the spleen attracted immediate attention, of a dark purple color, enlarged to three times the normal size; incising it the trabiculæ were found broken down, and general disorganization had taken place. Liver somewhat enlarged, the upper portion of right lobe of a straw color; gall bladder contained about six ounces of semi-fluid, viscid, almost brown colored bile.

First three stomachs indicated no functional or organic disturbance; fourth stomach, lining membrane reddened and having an irritated appearance; the color presented a few ecchymosed spots on its external surface; the internal surface of

jejunum slightly congested and thickened; the mucous membranes of cæcum and rectum also manifested some congestion. Kidneys somewhat enlarged and of a dark color in their circumference, otherwise apparently normal in structure; urinary bladder perfectly healthy in appearance, and contained about four pints of very dark colored urine; specific gravity of urine 1008, slightly alkaline, and formed a large coagulum upon boiling. The appearance of the muscular tissue of the animal was very pale and bloodless; the small amount of blood contained in the arteries and veins was of the same color, very thin and watery, and from a total absence of clots was apparently almost destitute of fibrine.

Post-mortem examination of steer No. 2. Aged two years, died apparently without a struggle, still quite warm. Proceeded as in No. 1, and found the appearances throughout about the same except a considerable congestion and apparent sub-acute inflammation of the intestines; the longitudinal folds of the rectum presented black streaks caused by an extravasation of blood under the mucous membrane; contents thin, and mixed with blood and mucus. Mesenteric glands greatly enlarged, some of them measuring fully three inches in length, two wide, and half an inch in thickness, of a vealy color, and possessed a soft, doughy feel to the touch.

These two animals examined were in but fair condition, and had the appearance as if rapidly fallen off in flesh, gaunt, and the skin drawn tight over the ribs.

Two more steers belonging to the same parties were reported as lying dead on the other side of the creek; but it was getting late in the day, so they were not examined; they had died some time during the previous night; the two examined were alive in the morning, one of them down, unable to rise, and the other one staggering in his gait and purging; this was the first intimation had of any sickness among the herd of Martin & Gleason's cattle, and the first ones that died in their field during the season. Upon leaving the field I noticed two animals showing evidences of sickness, manifest by weakness—a general loose-jointedness in their gait, saliva dribbling from the mouth, eyes dull and star-

ing, and a diarrhœa. After considerable chasing we succeeded in catching one of them; age, two years: pulse, 90; respiration, 32; legs, horns and body warm; administered one dram of sulphuric acid in water. Next day Mr. Gleason reported this one apparently improving and the other one warm; but on the morning of the 26th both were found dead, together with a third one, which had not been previously noticed. No opportunity was given for examination.

Martin & Gleason suffered a total loss of seven head out of a herd of 130 then in the pasture.

Six of the number that died had been placed upon this field on the 8th day of September, and the seventh one had been in since early in June.

The field in which these cattle died is situated four miles north of Sterling, Whiteside County, State of Illinois, and on the west side of a public road running north and south; the field contains 160 acres of part timber and part bottom land; through it runs a good-sized stream of water named Elkhorn creek; into this field were placed about 100 head of Cherokee or Indian cattle, on or about the 5th day of June last, together with about 50 head of native cattle; and the 23d day of July another lot of Cherokee and native cattle, numbering 50 head, were added; both lots were purchased in Chicago, where they had just been received from St. Louis. Throughout the season, or from June 1st to September 25th, about 500 head of cattle or upwards, including the two lots mentioned, had been pastured on this field, and from thence went by small lots to the butchers at the rate of 100 a month. On the 25th of September about 120 head, the number then remaining in the field, were sold and shipped to Chicago.

On the 1st day of July a heavy freshet occurred, which swept away the fence intervening between the field of Martin & Gleason's on the west, and that of Mr. William Echtenach's on the west; the fences along the road were also carried away, and the cattle of Martin & Gleason's crossed the road into the pasture field of David Wolf, through it into John Stouffer's, thence into Ben Bressler's timber; in Mr. Wolf's field some of the Cherokee

cattle remained for several days, and one until the 6th of October.

The field belonging to Mr. Echtinach traversed by the cattle of Martin and Gleason's was partly planted with corn and part sowed in oats. Mr. Echtinach's cattle did not come into contact with Martin & Gleason's cattle after the 2d day of July, neither did Martin & Gleason's cattle penetrate Mr. Echtinach's regular pasture-field, which adjoins the corn-field on the west. The Elkhorn creek runs through all these fields enumerated, its course being from east to west.

October 8th.—Mr. Thares Landis, living two miles north of Sterling, informed me that he lost a steer on the night previous.

I proceeded to his place, accompanied by Messrs. D. N. Foster and Henry Bressler, the latter gentleman informing me that he, also, lost a fat steer this morning.

History given by Mr. Landis: Removed from David Wolf's pasture-field twelve head of cattle on the 5th, where they had been since the 1st of May; on the 6th, one of the animals brought home was noticed to be ailing, and on the morning of the 8th was found dead.

Post-mortem appearance, No. 3. Aged 30 months; fat and in excellent condition; lying on his left side outstretched; drops of blood standing all over the body. Turned him over on the right side; removed the left shoulder and ribs; found very slight congestion of posterior lobe of left lung, and some interlobular emphysema; pericardial fluid bloody colored; external appearance of heart ecchymosed; internal appearance, heavily congested, almost a black color, small blood clots in both ventricles; weight of heart, four pounds. Spleen, weight, four and seven-eighths pounds, presenting an engorged and disintegrated glandular structure. Liver, weight, nineteen and seven-eighths pounds, very dark colored; blood vessels filled with blood; evidence of a fatty degeneration left upon the knife-blade after making a number of incisions into the structure of the liver. Fourth stomach, internal surface congested and studded over with a number of small circumscribed abrasions, dark colored in centre, and deep; discoloration found throughout the length of

the intestinal canal; longitudinal folds of rectum black streaked. Urinary bladder healthy, containing about two quarts of very dark colored urine; specific gravity, 1010, coagulated upon application of heat and nitric acid. Kidneys, weight, right, one pound and a half; left, one and three-eighths; both kidneys containing a little bloody colored urine, the cortical portion darker than normal—a dull brown color. Muscular tissues, pale and almost bloodless, presenting the appearance in color of veal; blood in blood vessels watery, but darker in color than in cases Nos. 1 and 2.

October 8th.—A steer, owned by Henry Bressler, five miles northeast of Sterling, died last night. This steer, with fifteen more belonging to Mr. Bressler, had been in Mr. Wolf's pasture from the 20th of May until the 5th of October.

October 6th, was noticed to be sick by one of the neighbors; was found dead, lying in the creek (not the Elkhorn), in Mr. Bressler's field on the morning of the 8th.

Post-mortem appearances, No. 4.—Aged 3 years; proceeded to examine as in previous cases. Muscular tissue rather dark colored, and muscles presenting a speckled appearance; blood vessels containing a normal amount of blood, clots very strong and abundant; lungs emphysematous, and considerably congested, a slight deposit and organization of lymph, forming a small adhesion of the right lobe to the diaphragm; pericardium contained about an ounce of bloody colored serum; heart flabby and extensively ecchymosed on its external surface—contents, heavy blood clots in each ventricle, extending through the valves into the auricles, the fleshy pillars of the right side very dark colored, almost black. Spleen, weight 5 pounds, ecchymosed, and engorgement of the blood vessels of the covering peritoneum, trabiculæ broken down. Liver, weight 24 pounds, superior lobes of an olive color, lower lobes very dark and somewhat hepatized; gall bladder contained about twelve ounces of brown colored bile, and of a granular appearance—like old rancid lard. Abomasum, internal surface covered with small papillar eruptions, and several small ulcers with ragged borders; the small intestines reddened and congested throughout their entire length, and occasionally present-

ing groups of small ulcers ; there was also considerable softening of the mucous coat of the intestines ; contents of rectum covered with mucus and small blood clots. Urinary bladder healthy, containing about twelve ounces of grape-colored urine. Kidneys normal.

This animal was fat and had apparently not lost much in condition.

Mr. Bressler also lost a steer in Mr. Wolf's pasture about the 15th of September ; was found lying dead in Elkhorn creek, where he was allowed to remain and decompose (contrary to my orders), and another one—a heifer—died a few days later.

Total loss occurring in Mr. Bressler's herd of 18 animals,—three.

Mr. David Wolf lost three head, out of a herd of eighty animals about the same time that Mr. Bressler's second one died.

Ben. Bressler, in the adjoining field, lost a cow and a two-weeks old calf, about the 28th of September ; 10 head exposed.

John Stouffer found two steers dead about the 1st of September, after missing them for a week ; 14 head exposed.

(To be continued.)

A NOTE ON GLANDERS.

BY R. S. HUIDEKOPER, M.D., V.S.

Our colleague, Dr. J. P. Klensch, commenced in the January number of the AMERICAN VETERINARY REVIEW, an article "Concerning the Treatment of Glanders." I followed it closely and with interest, as it is a subject of importance to the veterinary profession and to all owners of solipeds, as well as being a subject which enters into the domain of public hygiene, in the protection of our own lives. The extracts from the journal of Dr. Klensch were of great value, as he showed that, although horses which were given rest and a good tonic treatment would temporarily present the signs of a "favorable" or a "pretty favorable" termination of their disease, yet they almost always relapse into the visibly glandered condition when they are again put to work,

or are subjected to inclement weather and bad surroundings. Dr. Klensch ends by saying that he "never considered such horses as cured of glanders, when no more of the disease could be discovered externally; for the germ of the disease is still existing in the body, in the blood, and is liable to burst out again under the effect of a cold chill, or a fever from any cause, traumatic or not traumatic." This sentence and the precise resumé of his elements for making a diagnosis, are lines which every reader should underscore; but yet it seems to me that the article might tempt some of your readers to undertake a treatment of glanders or farcy, which could benefit the owner of the patient by the gain of a little additional work, while it would expose him and his neighbors to the constant danger of having their other valuable animals contaminated. Each veterinarian who assumes the treatment of a case of glanders, which is in the possession of another, only contributes to confirm the opposition of the laity against any attempt toward the establishment of good American laws of sanitary police. While Dr. Klensch's article is still fresh in the minds of your readers, it may be of interest to add a sketch of the laws concerning glanders and farcy, which are now in force in some of the European countries. The German Royal Cattle Disease Law, of June 23d, 1880, prescribes:

§ 40. As soon as a case of glanders is discovered, the police must order the killing of the animal.

§ 41. Suspected animals must be separated and placed under police surveillance, with such limitation or prohibition of the commerce or use of the animal as may be required by the nature of the case.

§ 42. The police must order the slaughter of suspected animals, "When the official veterinarian considers that the symptoms render an outbreak of glanders probable,

"When without it, it would be difficult to prevent the extension of the disease,

"When the proprietor demands it, and the prompt suppression of the disease is required for the public good."

§ 43. The bodies of glandered horses, which have died or been killed, must be immediately removed with care. The skinning of them is prohibited.

§ 44. The police must make written reports to the Commander-General of the Army Corps of their department, at the first suspicion or outbreak of the disease, during its course and at its termination (extinction). If there is a garrison in the department, the commanding officer must be notified.

This law is accompanied by general instructions which prescribe that the police and the official veterinary surgeon shall study the circumstances attending an outbreak of glanders, and report the condition of the stables of the present and *former* owners of the sick animal. The attendant of a glandered horse or of an animal suspected of the disease, is forbidden to take care of other horses, or to sleep in the stable. In the absence of the police, the veterinary surgeon is authorized to carry out the law. The stalls of glandered horses must have a notice to that effect over the door. The public are forbidden to enter the stable, and the removal of harness and cleaning utensils is not allowed. Special directions are given concerning the removal of a glandered horse and the means to be employed in killing him. The body is to be boiled till the soft parts fall to pieces, or is to be burnt; where this is not practicable, the hide is cut in strips to render it worthless and the body must be buried at least 40 inches (1 meter) under ground. Where there is suspicion of glanders in a stable, the other animals can only be removed and used after a special authorization from the police. All harness and stable utensils must be disinfected. The stables must be visited by the official veterinary surgeon at least every fourteen days; horses that have been removed from the stables must always be visited at the same periods. The surveillance continues during six months. If any of the animals are sold or removed to another district, the officials of this latter must be notified. The means of disinfection are prescribed by law. When the animals have been killed and the disinfection has been completed, or when suspected animals have been declared sound by the veterinarian and no further danger is apprehended, notice is given in the official newspapers.

The law of the Austro-Hungarian Empire dates from Feb. 29th, 1880. The following are extracts:

Glandered animals are to be killed without delay. Animals suspected of glanders are to be separated and kept under the supervision of an approved veterinary surgeon. If the suspicious symptoms continue over six weeks, the animal is to be killed, or the expense of further supervision must be defrayed by the proprietor. Horses that have been in contact with glandered animals are confined to specified localities and are to be watched for two months. The further prescriptions are in general the same as those of Germany. In these countries the government pays a fair indemnity to the owners of animals which are killed on account of glanders; this is also the case in Italy.

In France, the law of July 21st, 1881, in regard to the contagious diseases, says :

“ Art. 8. In the case of confirmed glanders and in the case of farcy and anthrax, if the veterinarian appointed considers them incurable, the animals must be killed by order of the mayor,” etc. The use of the two terms, glanders and farcy (*morve* and *farcin*), and the possibility of treatment of the latter, was very unsatisfactory to the teachers of the veterinary schools and to the veterinary profession in general; it, however, found its way into the law to become practically a dead letter, for, throughout France farcy is regarded as glanders and as incurable, and the diagnosis of either is followed by the immediate destruction of the animal. In France no indemnity is allowed. The laws of Belgium are much the same as those of France. All commerce of glandered animals is forbidden, and a seller can be prosecuted both for the sale of such an animal and for the damage which may ensue through contagion.

Dr. Klensch has clearly given the points necessary for the diagnosis of glanders, more or less developed. For determining the nature of a suspicious case, various means may be employed. In Italy and in parts of France, where donkeys have very little value, they are inoculated, either subcutaneously or by rubbing the discharge on the mucous membrane of the nose. If the matter employed is from a case of glanders, the donkey will show the disease in its acute form at the end of the first week. In the north of France, in Belgium and elsewhere, dogs are

used. Glandered matter, inoculated in the skin of these animals, produces a very characteristic ulcer in a few days, which may or may not be followed by a general infection. If, on the contrary, the glandered secretion is injected into the connective tissue, or is put on the mesh of a seton, it will be followed by well developed symptoms of the disease. The recent studies of Loeffler and Schuetz, in cultivating and inoculating the bacillus of glanders, show that the guinea-pig is a convenient and sure animal in which the glanders can be reproduced in its acute form in about eight days. The rabbit is less adapted, as in it the disease often takes a chronic course, or fails to develop. White rats are not susceptible; but in field mice the disease shows itself promptly. The German discoverers of the bacillus employ the following formula for coloring the microbe, in microscopic sections, or in glandered matter, dried on the glass cover:

1st. Color in a concentrated watery solution of methyl blue.

2d. Wash in very dilute acetic acid.

3d. Extract excess of water by alcohol.

4th. Mount in balsam (cedar-oil).

While Loeffler and Schuetz describe the bacillus as being a rod, similar to that of tuberculosis, discovered by Koch, Israel finds two forms, one "smaller," the other—which he considers the real one—the same length as that of tuberculosis, but thicker and containing larger spores. Dr. Wosnessensky, in the laboratory of M. Chanveau, also finds two forms like Israel, but in examining the same cultures at more advanced periods, he has found that the form is not stable, but at times there is a sort of mycelium in the form of an L, and moreover a tendency to the formation of spores in a bed of protoplasm.

It is evident that this study is in its beginning and all that is yet proved is, that the cause of glanders is a parasite. One reason for the difference in the form of the bacillus in Germany and France, is, probably, that the Germans use the coagulated serum as a medium of cultivation, while "bouillon" is more generally employed in the French laboratories. The microscope should magnify 700 or 800 diameters in order to show the microbe clearly.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 62.)

ACTINOMYKOSIS IN MAN.

In mankind, so far as I am aware, only sixteen cases of the disease have as yet been recorded, Dr. Ponfick having observed no fewer than five. All the cases published hitherto have occurred, I believe, in Germany. They are tabulated as follows by Johne:

No.	OBSERVER.	DIAGNOSIS.
1	Israel	Chronic Pyæmia. Death. <i>a</i>
2	Do.	Inflammatory Tumefaction of the alveolar processes of lower jaw, with deep-seated Abscess. Recovery. <i>b</i>
3	Do.	Subperiosteal Abscess at the margin of the lower jaw, coincident with Caries of the third molar. Recovery. <i>c</i>
4	Do.	Chronic Pyæmia. Death. <i>d</i>
5	Ponfick	Prævertebral Abscess, with Caries of the vertebræ. Death. <i>e</i>
6	Do.	A similar case, and fatal termination. <i>f</i>
7	Do.	Abscess after extraction of an upper molar tooth, immobility of the jaw through cicatrization, Fistulæ in the temporal muscle and upper part of the neck. Death. <i>g</i>
8	Do.	Prævertebral Abscess, opening into the jugular vein, Metastatic Tumor in the heart, Actinomykotic Periand Myocarditis. Death. <i>h</i>
9	Do.	Ulceration of the jaw and Abscess. Partial resection. Recovery. <i>i</i>
10 } 11 } 12 } 13 }	Rosenbach ..	Actinomykosis Tumefactions, with deep-seated Abscess. Recovery. <i>j</i>
14	Kracke.....	Particulars not known.
15	Esmarch	Particulars not known.
16	Weigert.....	Peripleuritis.

*From the Veterinary Journal.

a Virchow's Archiv, Bd. 74, s. 15. *b* *Ibid*, Bd. 74, s. 37. *c* *Ibid*, Bd. 74, s. 41. *d* *Ibid*, Bd. 78, s. 421. *e* Breslauer arztlicher Zeitschrift, 1879, s. 116. *f* *Ibid*, 1879, s. 117. *g* *Ibid*, 1880, s. 151. *h* *Ibid*, 1880, s. 151. *i* Mittheil. v. d. Naturf.-Vers. zu Danzig. Berlin Klinik Wochenschrift, 1880, s. 42. *j* Centralblatt für Chirurgie, 1880, s. 225.

I cannot do more here than briefly refer to some of these cases, to show their relationship to those occurring among animals.

Professor Ponfick's original case was that of a powerfully-built man, aged forty-five, who had suffered from the sequelæ of pleurisy on the left side for a year and eight months. After death, there was found an extensive prævertebral phlegmonous inflammation in the posterior mediastinum, with a parapleuritic abscess-cavity extending both to the right and left, at the level of the seventh, eighth, and ninth intercostal spaces; with this cavity there communicated a complex system of sinuses, extending through the substance of the longissimus dorsi, the scapular muscles, and the subcutaneous tissues of the whole back. The sulphur-yellow fungus-bodies were found upon or between the granulations of these sinuses and in their substance, as well as in the sero-purulent discharge; they were also found in a cavity of the size of a cherry, which occupied the centre of a hepatised area of the left lung (lower lobe), as well as in the exudation that filled some of the neighboring alveoli. The second case was that of a woman aged sixty-one, admitted with an abscess of the lower part of the abdominal wall; she subsequently developed another abscess of the left iliac fossa, without recurring symptoms of peritonitis, and died from exhaustion. After death, caries (with prævertebral collection of pus) of the three lower lumbar and first sacral vertebræ, abscesses in both iliac fossæ, and perityphlitic adhesions, were found. The yellow fungus bodies were discovered in the pus of the prævertebral abscess. The third case was that of a woman, aged forty-five, who had suffered an injury of the right thumb three years before, with swelling of the arm, which did not subside, but extended to the neck and back, and was accompanied by progressive weakness. The necropsy revealed extensive sinuses on the left side of the neck and in the prævertebral tissue, a knob-like exerescence of new growth extending into the lumen of the internal jugular vein, a tumor, of the size of an apple, growing into the right auricle and ventricle; with corresponding whitish centres in the ventricular substance, and gelatinous nodules in the spleen and

in the occipital lobe of the right cerebral hemisphere. In this remarkable case, the fungus-bodies were found in the sinuses of the neck, in the substance of the sarcoma-like growth of the jugular vein, in the tumor of the right auricle and ventricle, and elsewhere. In the fourth case, the illness began fourteen months before death, following the extraction of an upper molar tooth; it consisted of swelling in the region of the right maxillary joint, tumefaction of the face, and subsequently of the neck; successive outbreaks of abscesses and sinuses in these regions. Death occurred from extreme exhaustion. The yellow fungus bodies were frequently obtained in this case from the sinuses during life. The record of the case is too elaborate to be given, even in outline, but it may be mentioned that there was, besides the extensive sinuses and granulation-centres of the face and neck, a prævertebral abscess extending from the basilar process of the occiput to the fourth dorsal vertebra, with osteophytic growths from all the bones, together with caries of both occipito-atlantal joints and of the right atlanto-axial. In the fifth case—a boy—the first indication of illness was a year before death, when he had symptoms of pleurisy; nine months later, there was a new and much more severe affection of the same side, with general dropsy, progressive swelling in the lower part of the back, and evacuation of pus from a cavity opposite the eleventh left rib. *Post mortem*, a large prævertebral cavity was found on the left side, partly retropleural at the level of the eighth, ninth, and tenth ribs, and partly retroperitoneal at the level of the last two ribs and the left kidney; also several perforations of the diaphragm. There were numerous centres of Actinomykosis in the muscles of the back, in the intercostals, and in the left psoas muscle; also in the muscular substance of the left ventricle, and in the upper end of the spleen.

In Rosenbach's cases, the disease commenced in the neighborhood of the jaws, and appeared to be in some way dependent upon carious teeth, involving the dental alveoli. Ponfick and Israel had remarked on this tendency of the disease to originate in the teeth or their sockets. This local affection is not unfrequently followed by metastatic abscess in the liver, spleen, intes-

tine, and muscles. Death seems to result from chronic pyæmia, or from exhaustion, as a consequence of protracted and pernicious suppurations. In mankind the tendency of the disease is to the formation of abscesses and suppurations; in bovines, to tumors and small nodules.

In all the detailed reported cases occurring in man, there have been found, in the pus of the abscesses, immense quantities of small nodules, the majority being the size of a pin's head, sulphur-yellow in tint, and generally soft and tallowy in consistence. These are agglomerations of the *Actinomyces*.

The Actinomyces.

The botanical character of the *Actinomyces* does not seem to be yet clearly established. Harz, who first studied its morphology and biology, was inclined to consider it as belonging to the class of moulds (such as the *Penicillium glaucum*), but Karsten thought it should be included among the *Coniomycetes*, as the "rust" and "smut" of cereals and grasses, and therefore belonging to the *Ustilaginæ*. So long ago as 1870, Professor Hahn, of the Munich Veterinary School, had discovered in a case of "Wooden Tongue" (*Holzunge*) characteristic organized bodies, which looked like a kind of brush-shaped mould. When Bollinger drew attention to the disease in 1877, and to the presence of these fungi, Harz made a special investigation of them, and from their eccentric radiating structure gave them the name of *Actinomyces*. As has been already shown, the fungus is contained in nodules which are often soft or puriform, and forms a pale-yellow, brownish, or greenish-yellow, globular tuft, which, under a low microscopical power, offers a radiating arrangement of its substance, from the centre towards the periphery, reminding one somewhat of the crystals of certain fat acids. The larger of the tufts, which generally are composed of two or more mulberry-shaped masses, often appear to the naked eye as very small, millet-sized bodies. When properly prepared and highly magnified, if the nodules were embedded in tissues, they are observed to be composed of a kind of fibrous capsule; within this a layer of cells, for the most part of a lymphoid character; nearer the

centre are larger cells, like ordinary epitheloid cells; and in the centre the *Actinomyces* clusters.* Iodine, anilin, and picric acid give these a characteristic reaction, the cell-membrane generally offering a cellulose reaction. Alcohol, æther, acids, and alkalis have no immediate effect upon the fungus tufts, and this distinguishes them from such bodies as fat crystals. By pressure, the globular tufts can be broken up into numerous kinds of wedge-shaped pieces of various sizes, from 0.010 to 0.050 millimeters in length, and the majority are about equal in breadth towards the end. Each piece is composed of a great number of individuals, every one of which is somewhat conical, from 0.0005 to 0.0020 millimeters broad, about 0.0045 millimeters long, representing the mycelium, from which begins a central base-cell or basidium. From this arises a two to nine-stalked hyphen, from 0.0005 to 0.002 mm. in diameter, and at the extremity of the stalks or sterigmata are the conidia.

CONTAGIOUS DISEASES IN KANSAS.

BY A. A. HOLCOMBE, D.V.S.

A bill was presented in the Legislature of this State during the session of 1881, which had for its object the creation of the office of State Veterinarian, and the adoption of such measures and regulations as should look to the prevention and suppression of contagious diseases among the domestic animals of the State. For various reasons the bill failed to pass. During an interval of the next two years the question received serious consideration at the hands of many of the most thoughtful stock owners and breeders in the State. Foremost among these was Governor Glick, one of the most successful practical breeders of blooded stock in the State. In his message to the Legislature in Jan., 1883, he strongly urged the necessity for action in the matter; but not-

* A good method of showing the *Actinomyces* is to cut sections, and stain them singly with Spiller's purple, or doubly with it and diluted soluble blue. To demonstrate the separate parts of the nodule, a small portion may be teased out in glycerine.

withstanding he was ably seconded by many members of the Legislature, no action was taken further than the introduction of two bills. Of these two bills one was drawn almost similar in its provisions to the laws now in operation in Wyoming Territory and the State of Illinois. The salary was named at \$3,000 per year, with a contingent fund of \$2,000 per year. But this provision was so modified by the committee to which the bill was referred, that had it passed the law would have been practically inoperative for the want of an officer with sufficient ability to fill the position. Further, other provisions were so modified that even an able officer could have accomplished but little or no good. So, for two more years we are left to the ravages of all the diseases which may affect our animals, without any hope of relief from our authorities. That we are not in imminent danger from the importation of diseases new to us, may be true; but we have not been wise enough to adopt such precautions as might prevent the introduction of pleuro-pneumonia, foot and mouth disease, or other contagious disorders. Still worse, we are utterly at the mercy of these diseases should they be introduced; for we are without means by which to detect their introduction, and without measures to prevent their spread. That foreign cattle are coming to our State in considerable numbers is known to all; that they are free from contagious diseases we have no satisfactory assurance.

But even were we free from outside danger in this regard, we need relief from the losses inflicted by the diseases we already have. With \$60,000,000 worth of live stock in the State, we have, I am informed, but *one graduated veterinarian* in civil practice, and yet I am aware of large yearly losses from glanders, farcy, anthrax, hog cholera, tuberculosis, cerebro-spinal-meningitis, scab, Texas fever, contagious ophthalmia, and (so report says) hydrophobia. Of course, the veterinarian who must depend on private practice for a living can do but little for the sanitary policing of the State, and his accidental contact with diseases is about the limit of his influence with regard to their suppression. Practically there are no reliable statistics in the State of the losses from the various diseases, nor will there be until educated veterinary surgeons have the opportunity to investigate their frequency, extent and mortality.

The State has neglected her duty in this regard, and daily pays the penalty, which I am sure cannot be a light one. We are in great need of a State Veterinarian, and as greatly do we need many civil practitioners.

EDITORIAL.

INOCULATION IN CONTAGIOUS FEVERS.

The truth of the germ theory in the development of contagious diseases, and the value of inoculation as a prophylactic against these affections, have in the past few years found a long list of investigators in Europe, and while many of the facts advanced by Pasteur have found their supporters in various countries on the continent, they have also been rejected by a few. And while Germany has produced the most serious opposers of the experiments of the celebrated French chemist, recent discussions which have taken place at the Academy of Medicine in Paris seem to show that the great results obtained by the new discoveries are not yet endorsed by all the professors of either human or veterinary medicine.

Pasteur's discoveries and invention of a process for attenuating the virus have been followed by the investigations of others, amongst whom must be mentioned the names, now celebrated, of the two French veterinarians, Toussaint and Chauveau. America has not, however, remained ignorant of the good work which could be realized in the new direction, and new investigations of the causes and prophylaxy of contagious diseases. Dr. E. Salmon, a graduate of veterinary medicine of Cornell University, has followed from the beginning in the path opened by the European workers.

As early as in July, 1880, that is, *nine months before Chauveau made his communication before the Academy of Sciences*, he had made experiments in the effects of inoculation made with diluted virus, and he has since kept them up and applied this method to his thorough investigation of fowl cholera, as his extensive and elaborate report, published in the Report of the Commissioner of Agriculture for 1881-82, shows.

We have in this REVIEW completed an article of his on the important question of the production of immunity by inoculation with diluted virus, which will, no doubt, show that Dr. S. is quite master of the subject, and that the appointment which he has just received from the Commissioner of Agriculture was well deserved, and will prove but another opportunity for him to continue in the completion of this interesting work.

We also publish an article from M. Chanveau, presented to the Academy of Sciences, on a new method for the preparation of attenuated viruses, the process being no longer carried on by the influence of oxygen, as in the mode of Pasteur, or by dilution, as in that of Salmon, but by the action of heat, a process which seems, for many reasons, likely to take precedence in general practical application over that which is now generally in use on the continent of Europe.

It will be gratifying to the veterinary profession of America to learn that, young as she is in the field, she is already making her mark in the most important department of their calling, viz., that of the prophylaxy of contagious diseases.

REPORT OF CASE.

HYDROTHORAX—TUBERCULOSIS IN A RHINOCEROS.

BY A. LIAUTARD, M.D., V.S.

Mongo was a huge female rhinoceros, which since the age of three years had been one of the attractions of the "greatest show on earth," the property of Barnum, Bailey, Hutchinson & Co. Aged 16 years and weighing about 5,000-pounds, she had always enjoyed apparent good health. She was of a kind disposition, had always fed well, never coughed; drank about five pails of water a day. All that was noticed about her was that for the last three months she had a peculiarity of resting her throat over the edges of her cage, breathing then with difficulty, remaining in that position for a few moments, going about in her cage, to resume again the same position. This winter she has seemed somewhat delicate in feeding, eating about 10 quarts of oats and meal a day, a dozen of carrots, a couple of loaves of bread, and

about 50 pounds of hay sprinkled with water. She came from the winter headquarters at Bridgeport to the Madison Square Garden on Wednesday morning, the 19th of March. In the evening, at eight o'clock, she looked as usual, and was fed. The next morning, when her keeper opened her cage, he found her lying down, dead, in a position indicating that she had succumbed almost without a struggle, her bedding not being disturbed in the least, and no special noise having been noticed during the time by the watchmen.

She was brought in her cage to the hospital of the American Veterinary College, where a post-mortem examination was made by me, assisted by Dr. Coates and the two house surgeons, Drs. Kay and Critcherson.

On the opening of the cage the animal is found lying on her right side, the legs folded under the body, in her usual position, the head resting on the floor; the body is in good condition. A bloody mucus discharge escapes from both nostrils. Dragged outside of her cage by a number of men with ropes and pulleys, she was lowered on two dissecting tables, placed on her back, and her extremities secured to standards at each corner of the table.

An incision was then made on the median line of the body, from the chine down to the pubis, and the skin, which was found more than an inch thick, was dissected from the body. The abdominal muscles being removed, the internal viscera were exposed and taken out. The entire mass of the small intestines seems to be healthy, except in the anterior portion, and contain a bloody fluid; the mucous membrane is somewhat congested, and in some parts of a dark color and softened. This condition exists principally at the anterior extremity, or about a foot and a half from the pylorus. The large intestines are filled with fecal matter, the mucous membrane being slightly congested and softened.

On removing the stomach, a large nodulated tumor shows itself, between the œsophageal and pyloric openings, at the small curvature, filling it in its whole extent, round in its principal mass, and showing shoots of hard masses running alongside of the small curvature of the pyloric portion of the small intestine. This tumor is a tuberculous mass, hard, indurated, which on section shows a dense, fibro-granular aspect. In the single stomach

was found a certain quantity of food. The mucous membrane of the cardiac portion is normal, and covered with the porcelain-like structure, continues to the œsophagus. The pyloric portion presents three ulcerated patches; one about the size of a twenty-five cent piece, with well-defined, indurated edges, the center of the ulcers being flattened, soft, and of a pale reddish color.

The spleen is apparently perfectly healthy, presenting, however, towards the lower extremity, a few tuberculous deposits, situated in the fissure of the organ. One of them, about the size of a large walnut, is held in place between the layers of the great omentum.

The liver presents four lobes, is normal in color, perhaps a little softened, and offers on its nodulated surface a few tubercles, scattered irregularly. In the center of the hepatic structure is found a large tubercle, near the right lobe. The kidneys are lobulated, of dark color, slightly softened. The suprarenal capsules are enlarged and hardened, and also contain tubercular deposits. The mesentery and other parts of the peritoneum look normal. In the pelvic cavity a large mass of whitish-opaque albumoid, homogenous jelly-like structure is found, weighing about two pounds. The ovaries are large and healthy. The bladder contains but little healthy urine. In removing the uterus, the large mass shows the horns and the body of the organs covered by a large number of tuberculous masses, the largest about the size of a lady-apple. The mucous membrane slightly colored.

The sternum was then removed by section of the costal cartilages. In doing so, a large quantity of a clear, serous effusion escapes into the then empty abdomen. Measured, it is found that the thorax contains about twenty-eight gallons of this fluid, which has filled the cavity of the chest to nearly three quarters of its extent, squeezing the lungs in the upper portion of the chest, and producing a carnified condition of those organs. The lungs are adherent to the thoracic walls by strong fibrous bands of a dark bluish color. The right lung is in a hyperstatic condition, the anterior lobe of that lung being extensively emphysematous along the lower border. The surfaces of both lungs are filled with tubercular deposits, very heavy and dense. On section, the lungs allow the escape of a reddish fluid, which is

oozing from the divided surface, and numerous miliary tuberculous deposits are found in the whole pulmonary structure. The mucous membrane of the bronchii is congested, of a livid color, and their cavity is filled with frothy mucus.

The heart weighs about fifteen pounds. Its external appearance is healthy. The two ventricles are empty. There is a certain atrophy of the walls, and small calcareous deposits on the tricuspid and semi-lunar valves. The pericardium is adherent to the pleura and to the lungs by strong fibrous valves. The pericardiac and cardiac lymphatic glands are greatly enlarged and indurated, and slightly nodular on the surface. Three large tubercles are attached to the superior face of the sternum. The axillary lymphatic glands of both sides are very much enlarged, as are the pectoral, propectoral and lymphatic glands of the neck.

Microscopical examination of some of the glands, made by Dr. Peabody, pathologist at the New York Hospital, is reported as follows:

“I have just examined sections from the lymphatic glands, liver and skin of your patient, the female rhinoceros. I have never seen more typical or more beautiful illustrations of tuberculosis than the two former present. There are relatively few areas of caseous degeneration in my sections. I have never seen more perfect giant cells than these sections show, nor have I ever found them so numerous in any human tubercle. The skin is normal, so far as I have cut it.

“Very truly yours,

“NEW YORK, April 14, 1883.”

“G. L. PEABODY.

EXPERIMENTAL PHYSIOLOGY.

DIRECT AND RAPID ATTENUATION OF VIRULENT CULTURES BY THE ACTION OF HEAT.

BY M. A. CHAUVEAU.

The present subject has perhaps a great practical importance I will explain further on. For the present it treats principally of the general physiology of viruses, in the study of which I have

made many experiments upon the *Bacillus anthracis*, with the intelligent assistance of Dr. Jean Wesnessenky.

The former researches of Toussaint, confirmed and explained by M. Pasteur, have demonstrated that the heating of the anthrax blood is susceptible of diminishing considerably the virulency of the *bacilli* which it contains. I have also demonstrated that this attenuation can be graduated, at will, so to speak, in varying the condition of the heating process. I will now prove that this heating, considered as a means of pseudo instantaneous attenuation of viruses, can be applied to the liquids of artificial culture with much more success than to the natural fluids of the animal economy; liquids whose manipulation is difficult and delicate, while that of the culture is as simple in the processes as it is sure in the results. I proceed as follows:

In sterilized bouillon I sow anthrax blood. The matrasses are then placed in a thermostat, kept at the temperature $+42^{\circ}$ to 43° , as in the Pasteur process. But instead of leaving the matrasses during twelve or thirteen days in the thermostat they are taken from it after about twenty hours, to be submitted in another thermostat to the temperature of $+47^{\circ}$, during one, two, three hours or even more. The operation is then finished; it has not destroyed the vitality of the virulent agents of the culture, but they have lost more or less of their nocuity, according to the length of time they have been heated.

The first step of the operation, the sojourn of twenty hours in the thermostat heated at $+43^{\circ}$ corresponds to the stage of proliferation of the virus. There is nothing particular to remark upon the preparation of the cultures. I use light and very clear chicken bouillon, in which I place one drop of blood, rich in carbuncular batonnets. I prefer this to the spores of a previous culture in order to avoid the danger, undoubtedly imaginary, which would result from the non-transformation of some of those very resisting agents. Indeed, the important point is to obtain, in the cultures, virulent agents under a form which leave them very accessible to the influence of heat. This indication is thoroughly realized in the conditions mentioned. The bouillon is soon cloudy by the formation of a mycelium, which breaks up in small

threads or short batonnets, analogous to the *bacilli* of the fresh blood upon which heat has such an effective action.

The second step, corresponding to the stage of attenuation, does not require any delicate manipulation, any more, in fact, than the first. Removed from the thermostat at $+43^{\circ}$, the matrasses are placed in the second warming apparatus, after taking a small pipette of the liquid, to test the activity of the cultures. Two factors act in the attenuation which heat gives to those cultures: the degree of elevation and the length of time of the exposure to that high temperature. If the strength of the first of these factors diminishes, that of the second must increase, and *vice versa*. From numerous experiments it results that a heating of three hours at a temperature of $+47^{\circ}$ is sufficient to transform into agents harmless to the guinea-pig, the fluids and batonnets of cultures primitively very virulent.

Heating does not modify the external aspect of the cultures. Indeed, it prevents in them, all proliferations of threads and batonnets, although it does not prevent development of the rudimentary spores. On the contrary, heating stimulates their multiplication or causes them to appear when they did not previously exist.

I have said, that with this method, the attenuation of the cultures can be graduated at will, in giving to the heating a duration in relation to the degree of attenuation it is desired to obtain. This is one of the interesting points of my researches. To reach a greater certainty and give to the results of my experiments in inoculations every reliability, I always inoculated guinea-pigs by injecting under the skin of the thigh one or two drops of the liquid, according to the size of the animal. In those conditions, if one tries comparatively the same liquid of culture, supposed to be very active, before and after the heating, during one, two, three, or four hours, this is what he observes: all the animals inoculated with non-heated liquid die rapidly, that is, in about forty-eight hours, with a large œdema. Those which have received the liquid heated for one hour, die also, almost all, but death takes place generally later than in the first. The liquid heated two hours is much less active, as,

amongst the animals which have received it, some die slowly, with a slight local infiltration, while others, in at least equal numbers, resist and survive. The liquid heated three hours does not kill adult animals, nor even produce sensible local accident; *a fortiori*—it is the same with the fluids heated during four hours, and even more. And the virulent agents contained in these harmless liquids have preserved their prolific faculty; an important point to be hereafter considered.

From the experiments that I have made, the primitive virulency is in inverse, and its attenuation in direct ratio of the number of rudimentary spores which alter the homogeneity of the protoplasm of the threads and of the batonnets.

It is, then, shown that heating is an excellent means of, so to speak, attenuating instantaneously virulent cultures prepared in certain conditions. If this attenuation could be considered as the indice of a specific transformation, one could not hesitate to place heat amongst the most important agents to give to the protoplasm in way of evolution derivation of transformation.

—*Revue Scientifique.*

ON THE PROLIFIC FACULTY OF VIRULENT AGENTS ATTENUATED
BY HEAT, AND THE TRANSMISSION THROUGH GENERATION
OF THE ATTENUATING INFLUENCE OF A FIRST HEATING.

BY M. A. CHAUVÉAU.

One can assure himself in two ways that the attenuation by heat does not imply any alteration of the vitality, or of the prolific faculty, of virulent agents which have been deprived of their infectious properties by such action: 1st—Through means of the culture of the first generation itself, submitted to heat, in showing that the growth has only been temporarily suspended by that operation. 2d—Through the cultivation of the second generation, in showing that the seminal element furnished by the liquid of the primitive culture, before the return of its development, fecundates perfectly a new ground.

To utilize the first process, it is sufficient to place the matrasses

of culture, taken from the oven at $+47^{\circ}$ in another, heated only to $+32^{\circ}$ – 35° . The evolution then begins again its normal course; the proliferation continues, and the development terminates by the formation of a great number of true spores. By the general aspect of the microscopic characters, these cultures do not differ sensibly from those which have not been submitted to these special conditions, unless the exposure to heat has been too long continued. In general, four hours of heating at $+47^{\circ}$ does not prevent the following evolution, or scarcely disturb it.

The attenuating influence of heating of the cultures is not only temporary; it can be transmitted to a certain extent, when these cultures resume their course of evolution, to the spores born from the protoplasm of the threads and batonnets, which have received the action of heat.

But where the transmission of this effect of heat is specially manifest, is in the facility with which these spores are brought under the weakening influence of a heating process applied directly upon them. Nothing is easier or more simple than to render them almost absolutely harmless, by exposing them for some time to the action of a given temperature. I call attention to this new fact, which possesses special interest. It is not impossible to obtain a similar effect with the spores of normal origin, though rightly they are considered as susceptible of a strong resistance to causes of destruction, particularly to the influences of comparatively high temperatures. But these spores may be left, with impunity, for one hour or one hour and a half, exposed to a temperature of $+80^{\circ}$. They do not then undergo any sensible alterations in their morphological character, nor in their physiological properties. It is not so any more with spores of culture whose growth has been temporarily interrupted by heat. In this condition, this affects the objective character of the spore, which seems to become smaller, but is also greatly modified in its virulent activity. The culture can then be inoculated, without great risk to life, to guinea-pigs, and especially to sheep, which thus obtain immunity, as well as with any other preventive inoculation.

The culture of the second generation may, as well as this first means, prove the persistency of the vital activity of threads and

batonnets developed with the thermometer at $+43^{\circ}$ and rendered inoffensive by the action of heat at $+47^{\circ}$. It is proper to say a few words of this second means, which furnishes also excellent evidence to demonstrate that the effect of heat is graduated as well as its duration. In each of three matrasses heated at $+47^{\circ}$, during one, two and three hours, I take, with a pipette, a certain quantity of liquid. Three other matrasses being prepared, I put in each one or two drops of the liquid. They are then sowed with the threads and batonnets, attenuated by heat. These last matrasses are then put in, the thermometer showing $+32^{\circ}$ to 35° . What will take place in these cultures of second generation? Exactly what will in the primitive one, after the renewal of the process of growth. The culture of the second generation develop themselves, in fact, just so much more rapidly as the heat in the sowing has been less, and the difference of aspect which results from it may continue for several days. All, however, results in giving spores of handsome appearance, possessing the same properties as those of the primitive cultivation, especially that of their aptitude of attenuation by heating.

From the whole of this study it results that the attenuating influence produced by heat upon virulent agents is not alone individual; it can also be felt even upon the properties of the new agents to which the proliferation of the protoplasm from which it is derived gives birth.—*Academie des Sciences*.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The thirteenth regular meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, May 8, 1883, at eight o'clock, with the President, Dr. Liantard, in the chair.

The minutes of the last meeting being read and approved, Dr. Coates then read the following paper:

ASTHMA.

Broken wind is the name commonly applied by horsemen to asthma, and since asthma is an exceedingly rare disease, this expression is, when so generally applied, clearly a misnomer, and does not necessarily, nor scarcely ever, imply that the horse is suffering from asthma. When I state that it is rarely seen in the horse, it might be well to add that it frequently occurs in dogs. The object of this paper is to call the attention of the veterinary profession to the fact that under the present use of the term, "broken wind," other diseases are included which ought to be excluded, for the reason that from asthma they are readily differentiated.

Amongst those diseases which are so apt to be confounded are pulmonary emphysema and "roaring," the latter term being simply symptomatic of some pathological lesion of the larynx, and sometimes of the trachea. Now, to my mind, there should be no difficulty, according to the morbid anatomy of these named conditions, in discriminating between them.

In pulmonary emphysema, or "heaves," the lesion consists of an abnormal accumulation of air in the air cells and in the interlobular connective tissue, with a dilatation of the vesicles either with or without a rupture of their walls, and these walls rupturing gives rise to that condition known as air sacs, which varies in size in accordance with the amount of tissue involved in the process; these conditions are known as vesicular and interlobular emphysema. Asthma is purely functional, viz.—a spasmodic contraction of the bronchial tubes, while emphysema is organic, having a structural change; yet these conditions may be associated with each other, still they are distinguishable, as asthma is a disease *per se*. Literature on this subject leads us to suppose that in the past it prevailed extensively, but our experience at the present day does not bear this out. This great lessening of its frequency is undoubtedly due to the application of the progress of the science, resulting in an elimination of heredity, hygienic surroundings and feeding, which enters so largely into its etiology. Asthma is a spasmodic contraction of the involuntary

muscular fibres of the bronchial tubes, giving rise to paroxysms of dyspnœa, which are due to reflex nervous action. It is a non-inflammatory disease, and may be regarded as a neurosis depending upon a peculiar diathesis. The dyspnœa may be constant, with exacerbations and remissions at times, and the paroxysms may or may not be accompanied by catarrhal symptoms; if these occur, they may either precede or follow the attack, yet this disease is strictly non-inflammatory. An inflammatory condition of the mucous membrane of the bronchial tubes certainly acts as an exciting cause; this is of itself an irritation which gives rise to reflex tonic spasms, but a peculiar condition of the nervous system must exist, otherwise the paroxysms would not be produced. In animals suffering from organic disease of the heart or lungs, it is likely to arise. Asthma and pulmonary emphysema have been confounded and considered by some veterinarians as one and the same disease; although very frequently associated, they are distinct affections, and each may exist independently. It is a neuro-pathic affection, and no appreciable lesion is found on post-mortem to indicate its presence, and has no anatomical characteristics. Co-existing, as it may, with bronchitis and pulmonary emphysema during life, the lesion which tells of their having been present only are appreciable.

Etiology.—Its causes may be divided into predisposing and exciting. The predisposing cause is due to some peculiar susceptibility or constitutional diathesis, which is generally hereditary and transmitted from an animal to its offspring, and this may manifest itself at any period of life. It may also be acquired, and the animal acquiring it transmits to its offspring. The exciting causes are various. It may be produced by irritants directly to the bronchial mucous membrane, or from some reflex origin situated in distant parts, and again it may occur as a complication of some other disease. It originates from inhalations of smoke, irritating gases, emanations of hay, etc. Noxious substances present in certain atmospheric conditions excite it. I recall an instance where a gentleman demonstrated beyond a doubt, that in an animal of his it was caused by inhaling fumes of sulphur; for so soon as the animal was led into a barn where sulphur had been burned, it im-

mediately exhibited all the symptoms of asthma, the attack persisting until the animal was moved from that atmosphere. Emanations from the soil in certain localities is an active agent; overloading of the intestinal canal by bulky, indigestible food, as musty or coarse hay, when the nutritive qualities are limited, excite it.

Symptoms.—The initial symptom which attracts the owner's attention is the dyspnoea coming on suddenly, and this usually manifests itself after the animal has been driven, or, in some instances, it occurs a short time after feeding. This difficulty in breathing is accompanied by a wheezing sound, sometimes heard at a distance from the animal. The animal stands with outstretched legs, elbows turned out, head elevated, nostrils widely dilated, endeavoring to catch all the air possible; the thorax is fixed and breathing abdominal, respiration labored, jerky in character and greatly accelerated, the flanks rising with inspiration and falling with expiration. The inspiratory act is short, while the expiratory is prolonged and terminates in a sudden effort at expulsion. The visible mucous membranes are red, and in extreme cases become livid, due to the non-oxygenation of the blood; the eyes may become prominent and the countenance anxious. The pulse during the paroxysm becomes small and feeble. If coughing is produced, it has a short, dry, peculiar character, known as the "broken-winded cough," and in some instances the coughing is accompanied by a scanty discharge of a watery secretion from the nostrils, and during these coughing spells flatus is emitted from the anus. There is abdominal enlargement, presenting that appearance commonly known as "pot-bellied," providing the animal is dyspeptic. These symptoms, continuing for a longer or shorter period, cease, leaving the animal in an exhausted condition, which passes off in a few hours. In some cases these paroxysms may continue for two or three days, if not relieved by medicinal agents. On physical examination there is found, on percussion, an increased pulmonary resonance over the whole thorax; on auscultation, sibilant and sonorous rales are heard over both sides of the chest, and a diminution of the respiratory murmur. If the spasm is associated with bronchitis, mucous rales will be heard, changing their position.

Differential Diagnosis.—It is important to distinguish asthma from other diseases of the respiratory tract; and the one it is most likely to be confounded with is pulmonary emphysema. Asthma is differentiated from emphysema by its violence, and by the absence of dyspnoea during the interval between the paroxysms. In emphysema the cause of the dyspnoea is found in organic lesions, while asthma is functional; the breathing in emphysema is always difficult, with a double expiratory act, the ratio between the inspiration and expiration being about one to three; there is no interval of paroxysms, although it is increased during exercise. The physical signs will greatly aid the practitioner: being wheezing in character in asthma, while they are more sonorous in emphysema, with prolonged expiration. Roaring could hardly be mistaken for asthma, as the sound is produced in the larynx, and besides the absence of the other physical signs and the regular rhythm of the abdomen during respiration.

Treatment.—It should be borne in mind that your first indication is directed to the relief of the paroxysm, and this having been accomplished, then institute measures to prevent their recurrence. When called to see an animal suffering from asthma, the first thing to be done is to ascertain, if possible, the exciting cause, and if it still exists, remove it. If you find that overfeeding is the cause, give a cathartic in order that the intestinal tract be unloaded, and place the animal in the most favorable circumstances for relief. The history will greatly influence you in the proper remedies to select, as being best adapted for each particular case. All are not relieved by the same agents; in some instances by the use of sedatives we obtain the desired result, while in others stimulants effect it. Among sedatives the most effectual are opium, ether, nitrite-amyl and belladonna. These give relief by acting upon the nervous system of the lungs, or on the general nervous system. Inhalations of ether or nitrite of amyl or chloroform will relieve the spasm. As a stimulant alcohol is the most preferable, also carbonate of ammonia, and will be borne in large doses. During the interval between the paroxysms, the treatment should be altogether hygienic, and by the observance

of this rule, you lessen the tendency to another attack. These animals are usually dyspeptic, hence proper care should be persisted in in regard to their diet, also tonic and stimulants to the intestinal canal, as strychnia and belladonna, with an occasional purgative.

A long and lively discussion followed, in which Drs. Crane, Dixon and Lockhart took principal part, and the majority agreed to the English version of the term broken-wind, which is pulmonary emphysema.

A vote of thank was extended to the essayist. On favorable report from the Board of Censors, Dr. S. K. Johnson was elected to membership. Dr. Kay proposed the name of Dr. H. W. Bath for membership.

The President proposed the subject for discussion at the next meeting—scarlet fever in horses. On motion of Dr. Coates, the Secretary was directed to notify the members of the subject for discussion at the next meeting and to request their attendance.

Motion to adjourn was carried.

W. S. DEVOE, D.V.S., *Secretary*.

CORRESPONDENCE.

HYPERTROPHY OF THE HEART.

BREMEN, Ind., April 10, 1883.

Editor Review :

I herewith report a case that in some respects is very remarkable, which may be of interest:

About two years ago I was called to treat a case which had every symptom of colic, but which upon investigation proved to be hypertrophy of the heart. I treated the horse for colic, and for a time he seemed to improve, but subsequently he was again taken with about the same symptoms. I then gave anti-spasmodic treatment, but instead of improving, he seemed to grow worse. I then made a careful examination of the heart and its sounds, and found it very irregular, intermitting, with audible valvular

regurgitation. I placed him upon tonic, alterative and anodyne treatment. I was, however, unable to arrest the now—to my mind—thoroughly established disease of the heart. A few days since the horse died, and upon post-mortem examination I found the heart enlarged to at least twice—or nearly twice—its normal size.

I hope the foregoing may be of interest to your numerous readers, taking, first, the conditions, viz., the colicky symptoms; 2d, the valvular regurgitation; 3d, the intermittent pulse; 4th, the cartilaginous texture, of which I omitted to speak in the proper place, and, 5th, the gritty or rough feeling of the divided organs.

C. H. GOLLATZ, V.S.

INFLAMMATORY RHEUMATISM.

Editor American Veterinary Review :

On the 4th day of April I received a dispatch from Mr. Van Benthem, of Osage County, Kansas, requesting me to see a herd of thorough-bred young bulls, coming two years old. I complied on the 5th. Two were permanently down; when raised could not stand; had them sent over to the barn and slung; they belong to a herd of sixty-four head, all bulls, and extremely fat; have been full fed from their infancy. During last winter and up to this time they have been fed on corn, ground cob and all; of this they had all they could be induced to eat, with access to ripe millet, not threshed, with plenty of water from a stream running through a lot in which they were kept.

After caring for the sick, was requested to inspect the balance of the herd; found four that walked in a peculiarly lame, stiff, and wabbling gait. After a little exercise, walked natural, fed and drank.

April 10th, again visited the herd; two of the four ailing ones at my previous visit were down.

The statement of Mr. Van Benthem was to the effect that two days previous, in turning a short angle, on a smooth dry place in the lot, the red bull broke down, and on the evening of the 9th, the spotted bull was also down, by the side of the stream. They

were brought to the barn and placed in a bed of hay, where I found them in a helpless condition. The spotted one I ordered killed and skinned immediately.

Post mortem.—Large metacarpel, humerus and femur bones, broken obliquely—all on right side; bones healthy, not easily broken with a hammer; an over-abundance of very thick and yellow synovia; no signs of inflammation of the membrane; tendons and lamina normal; inflammation along the pulmonary artery and spine; kidneys healthy; gall bladder distended to its utmost; all the other organs healthy, with the exceptions of the omasum, which was dry and feverish.

This is only the beginning of the end of, as I fear, a loss to Mr. Van Benthem. He is a gentleman from Europe, worth over \$80,000, has a large herd of very fine cattle, and many acres of land.

I write hurriedly and I fear imperfectly, so far as a good diagnosis of the case is concerned, but hope you will give it due consideration, and give us a little more light on this important subject. I call the disease inflammatory rheumatism, caused from excessive high feed. I will investigate farther and report if desirable.

A. W. HOOVER, V. S.

NECROSIS OF THE TONGUE.

BEAVER DAM, March 20, 1883.

Editor Review:

I beg herewith to send you the report of a case which, as far as I could find, has not yet appeared in veterinary literature. It is a total incision and necrosis of the tip of the tongue, caused by too long dentes canini.

On the 20th of December I was called to a patient, which, according to the history of the case, suffered from angina catarrhalis. The principal symptoms were terrible meagerness, normal temperature, pulse and respiration normal, anemia of all mucous membranes, stiffness and œdema on all the legs. Locally, swelling of the parotid and submaxillary glands, efflux of a gluey, slimy, foetid salivation, bad smell of the mouth. On opening

the cavity with the speculum, one could see that the tip of the tongue was only loosely united with the body, and by the frœnum. It had a dark green-yellowish color, and smelt very badly. On removing the speculum, one could exactly observe, by the movements of the tongue, that the too long dentes canini had caused the incision, and that they fitted exactly in the cleft. How much time it had taken for these teeth to cut the tongue I cannot tell. Naturally, I was obliged to cut the necrotic part away with the bistoury. The stump was treated with a salve of equal parts of turpentine and honey, and healed entirely in six weeks.

COLIC AND HÆMAGLOBIMURIA.

Before I close, I would like to ask you if you ever noticed a case of colic, combined with a kind of "hæmaglobimuria"? Last Friday I was called to a patient who had taken cold during a ride from the country to the city. On the way, he commenced to sweat, to foam and to tremble so awfully, that the possessor was obliged to bring him into the next stable. At my arrival I found the horse still trembling, but no more in an excited condition. Temperature was 37.8° C.; respiration, 42; pulses, 66, soft and large. Intestinal murmurs could not be heard, and naturally I thought to find here the cause of the malady. As defecation had occurred three or four times, and as the patient did not show any distinct or important pains, I thought it the best to bring him home. After a trip of two and a half hours, three miles distance, we safely arrived at home, and after a few minutes the horse urinated a very dark red (black red) urine, just as by hæmaglobimuria. As soon as the horse came into the stable he urinated again as before, and in 15 minutes once again. The urine altogether was over two quarts, of black red color. I now examined the horse again. Temperature, 38.3° C.; pulses, 66; respiration only 18; a proof that there was no congestion toward the lungs. Intestinal murmurs and movement of the bowels were beginning very good; the appetite was also quite good. We covered the horse with several blankets, and gave fluid extract of hyoseyam. and sulphate of sodium. The owner of the horse told me that he had the same malady a year ago, under the same circumstances, but not so severely as this time. Now, the question

which I wish to solve is, How did this congestion of the kidneys occur, so as to produce a kind of hæmoglobimuria? Is it probable that the inactivity of the bowels during the colic was the cause of the bloody urinating? Or have I got to search the cause in a malassimilation of albumen, which by hæmoglobimuria (according to the examinations by Prof. Siedamgrotzky) produces a poison, and the latter causes the congestions of the kidneys and spinal cord? The horse is a very fleshy, heavy, young Norman horse, and has been fed very much upon corn. It is unfortunate that I could obtain no urine to make a microscopic examination. Hoping that you can give me some explanation of this case, I remain,

Yours respectfully,

WILLIAM THIELE, V.S.

POLYPUS OF THE BLADDER.

FORT WALLA WALLA, W. T., April 10, 1883.

Editor Review:

I send you to-day, by express, a tumor of unusual and peculiar growth, that I trust will be interesting in your museum, and otherwise useful.

A condemned cavalry horse, five or six years old, died on March 26th, a short time previous showing slight colicky symptoms, with dripping of urine. On making a post-mortem examination, I found the organs, with exception of kidneys and bladder, in a healthy condition. The latter was very much enlarged and thickened, with appearance of chronic inflammation, and in a state of atony. On opening it, I found this peculiar polypus attached to the neck at the prostates. It is about 12 or 15 inches long, weighed 22 ounces, and is of a cauliflower growth.

The kidneys were pale, soft and enlarged.

It has been in absolute alcohol since March 26th, and, I trust, will reach you in a satisfactory state of preservation.

Wishing anxiously to hear from you on the subject,

I am, with much respect,

R. B. CORCORAN, V.S., 1st U. S. C.

[The specimen has been referred to Dr. Peabody for microscopic examination.—ED.]

NEWS AND SUNDRIES.

CATTLE TRANSPORTATION.—The restrictions upon cattle transportation within the State of New York have been revoked.

EPIZOOTIC ABORTION.—Epizootic abortion has been reported as affecting herds in various localities for some time past.

PATENT MEDICINES.—In Italy, patent medicines are not allowed to be sold, unless the precise composition of the medicine is stated.

DECREE AGAINST AMERICAN PORK.—The intelligence is cabled to this country that Greece has passed a decree prohibiting the importation of American pork.

PASTEUR.—On the reassembling of the French Chambers, the government intend submitting a bill to raise Dr. Pasteur's yearly pension from 12,000 to 25,000 francs.—*Medical Record*.

VETERINARY SURGEONS.—France has one veterinary surgeon for every 1,100 horses, Germany one for every 1,500, and the United States one for each 200,000 domesticated animals.—*Farmers' Review*.

TEXAS FEVER.—Dr. H. J. Detmers, of Champaign, Ill., one of the experts of the Veterinary Division of the Department of Agriculture, has departed for Texas, where he will pursue further inquiries into the subject of Texas fever.

MORE VETERINARIANS NEEDED.—In an address before the Kentucky Medical Society, at its recent session, the practice of veterinary surgery was commended to young men. The speaker estimated that the yearly loss arising from the want of sound advice and treatment—the horses of the country being valued at nearly \$800,000,000—amounts to \$15,000,000.—*American Cultivator*.

BUFFALO GNATS.—In Arkansas the insect known as the "buffalo gnat" is doing unprecedented damage. The destruction of unprotected horses, mules and cattle is fearful. It is dangerous

to drive stock through the bottom lands of Desha and Chicot Counties, as the gnats are there by millions. In Bolivar County, Miss., nearly 100 mules have been killed by the pests.—*Farmers' Review*.

A NEW HORSE DISEASE.—The *Middletown Mercury*, of Orange County, this State, in its issue of the 27th ult., says: A new disease has made its appearance among the horses in the counties of Franklin and Clinton, and very generally throughout northern New York. It takes the form of rheumatism, usually starting in the fetlocks of the hind legs, frequently extending to all parts of the body. Some cases are resulting in suppuration, which discharges a thin, unhealthy, ichorous pus. Even if the horses recover, they are generally rendered useless by the effect of the disease.—*Turf, Field and Farm*.

PROLIFIC EWES.—The *North British Agriculturist*, Edinburgh, makes mention of some prolific ewes, as follows: "Mr. Adams, Hillhead of Rora, Aberdeenshire, during last week, has had added to his stock of sheep no less than eleven lambs by three ewes, two of the ewes having four each and the other three. The lambs are all living, and appear to be strong and healthy. A ewe belonging to Mr. James Hand, of 'Heugh Farm,' Northumberland, dropped five fine lambs on Saturday. The lambs and mother are all doing well. Mr. Hand has had two or three ewes with four lambs each already this year. On Tuesday, Mr. Thos. Lennox, cattle dealer, Sorbie, had four Yorkshire ewes which dropped no fewer than 13 lambs. Three of them had three lambs each, and one dropped four. All are doing well."—*Nat. Live Stock Journal*.

SYPHILIS IN THE MONKEY.—M. Mortineau reports progress as regards the syphilitic lesions in the monkey inoculated by him. On the fifteenth day mucous patches appeared, and the monkey showed signs of constitutional disturbance. The question whether lower animals can be affected with syphilis, which seems likely to be settled by M. Mortineau, is not one of scientific interest alone. The pathology and treatment of the disease can be greatly helped by a study of it upon such animals.—*Med. Record*.

IMMUNITY OF ANIMALS FROM SYPHILITIC INOCULATION.—Professor Neumann has made a number of attempts to inoculate animals with syphilis, but without success. The experiments were made with the greatest care, the virus being taken directly from the diseased person and introduced into the body of the animal. The animals experimented upon were kept under observation for a considerable period of time after the inoculation. In no case did any results obtain other than those which would naturally follow the introduction of an irritating material into the tissues. Nothing that bore any resemblance to a chancreous tumor was observed. The animals employed in these experiments were three apes, three rabbits, a horse, a hare, a white rat, a marten and a cat. The total number of inoculations was fifty-four. Neumann concludes from these experiments that we must regard syphilis as distinctly a disease of man.—*Med. Central-Zeitung*, January 24, 1883.

THE CULTIVATION OF TUBERCULAR BACILLI.—It is somewhat noteworthy that although a year has passed since Koch announced his discovery of the bacilli of tuberculosis, no one has yet repeated his experiments. The explanation is, no doubt, due to the fact that the experiments are difficult and require a large outlay of time and money, besides much technical skill. We learn now, however, that Professor Feltz, of Nancy, has been attempting to cultivate the bacilli, following strictly Koch's descriptions. He announced recently that all these attempts had proved utter failures, although he exactly followed the directions given him by Dr. Koch for this purpose in his original paper. "In presence of my failures," he says, "I could not be sufficiently thankful if I were furnished with the necessary information to enable me to avoid this kind of misadventure: for I would not cast a doubt, from the facts only which I have just mentioned, upon those which Dr. Koch has so positively affirmed."—*Med. Record*.

AN INSTANTANEOUS LIGHT.—Such in a word is the unique apparatus on exhibition at the rooms of the Portable Electric Light Co., 22 Water Street, Boston. It occupies the space of only five square inches and weighs but five pounds, and can be carried with ease. The light, or more properly lighter, requires no extra

power, wires or connections, and is so constructed that any part can be replaced at small cost. The chemicals are placed in a glass retort; a carbon and zinc apparatus, with a spiral platinum attachment, is then adjusted so as to form a battery, and the light is ready. The pressure on a little knob produces an electric current by which the spiral of platinum is heated to incandescence. The Portable Electric Light Company was recently incorporated, with a capital of \$100,000, under the laws of Massachusetts. The usefulness of the apparatus and the low price (\$5) will no doubt result in its general adoption. Some of the prominent business men of the State are identified with this enterprise. In addition to its use as a lighter, the apparatus can also be used in connection with a burglar-alarm and galvanic battery.—*Boston Transcript*.

¶ THE PARASITES IN PORK.—From the examination of one thousand hogs in the slaughter-houses of Montreal, Dr. Wm. Osler draws the following conclusions:

1. The investigation shows that the hogs slaughtered for our markets present parasites in numbers sufficient to necessitate a more thorough inspection than is at present carried out.

2. As regards *Trichina Spiralis*, which was found in the proportion of one to 250, we are of opinion that, considering the extreme rarity of cases of trichinosis, and the difficulties attendant upon a systematic inspection, a compulsory microscopic examination of the flesh of every hog killed is not at present called for.

3. In the case of "measles," the liver should be carefully examined, and if present in it, the flesh of the animal should receive the special attention of the inspector; if only in the liver, the entire carcass need not be confiscated.

4. Echinococcus cysts in the liver render that organ unfit for food, but in other parts, unless very numerous and disorganizing, they may be cut out, and the carcass remain marketable.

5. The public should be made aware of the possible dangers of eating, in any form, raw or partially cooked meat. The best safeguard against parasitic affections is not so much inspection of

the flesh, unless, indeed, this is carried out, as careful attention to culinary details.

6. To reduce the number of infested hogs, greater attention should be paid to their hygienic surroundings, particularly in the matter of feeding. The danger is not during the period when the animals are penned and fed on grain, etc., but when they are allowed to roam at large and feed indiscriminately.—*Western Medical Reporter*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Presse Veterinaire, Revue Scientifique, Gazette Medicale, Revue Dosimetrique, Annales de Bruxelles, Revue d'Hygiene, Journal de Zoötechnie, Archives Veterinaires, Recueil de Medecine Veterinaire, Clinica Veterinaria, Veterinarian, Veterinary Journal, Revue für Thierheilkunde und Thierzucht, Schweizerisches Archiv für Thierheilkunde und Thierzucht.

HOME.—Druggists' Circular, Prairie Farmer, Rural New Yorker, National Live Stock Journal, Breeders' Gazette, Country Gentleman, American Agriculturist, Spirit of the Times, Turf, Field and Farm, Medical Record.

JOURNALS.—New England Homestead, Nebraska Farmer, College Clinical Record, Medical Herald, Cultivator, Farmers' Review.

PAMPHLETS.—Etat Sanitaire des Animaux Domestiques en Belgique, On Demodux Phylloides in the Skin of Canadian Swine.

COMMUNICATIONS.—W. Devoc, A. A. Holeombe, John Faust, J. B. Cosgrove, C. B. Michener, F. S. Billings, N. Lanzilloti Buonsanti, A. A. Hoskins.

AMERICAN VETERINARY REVIEW,

JULY, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 102.)

CARTILAGINOUS QUITTOR.

I.—*Symptoms*.—A division has been made of an *acute* and a *chronic* form of this disease. Under the first name, is considered the earlier period of the affection, that in which there is inflammation of the cartilage and painful swelling of the part, and when the caries or necrosis of the fibro-cartilage is not yet established; or if there is a wound, when it does not yet granulate, and the suppuration, if it exists, is very slight. Chronic javart would be that in which the partial and progressive mortification of the fibro-cartilage exists; for, as Renault has said, it is the ordinary termination of fibro-chondritis.

When free from serious complication, the disease is generally accompanied with but little lameness; sometimes there is almost none, and animals can be kept at work, especially at a slow gait; but if made to trot, the horse will show lameness. It is especially when the quittor exists in the posterior parts, that the inflamma-

tion and the pain are not excessive, because there is there an abundance of soft, fatty tissue. But when the caries is more forward, and is situated more deeply, in a point nearer the articular surfaces, the lesion then affects the fibrous tissues, and the pain is greater. It is sometimes excessively acute.

Upon the lateral part of the coronet, towards the heels or the quarters, a more or less developed tumefaction appears, more or less painful, according to the duration of the disease, and in this case more or less indurated. In the centre there exists a granulating fistulous wound. There are one or several fistulæ, whose openings show granulations, bleeding easily, their course always forward, running at times in straight lines, at others irregularly. The tracts frequently communicate, and discharge a granular, serous and thin pus, of pale greyish color, generally odorless, or slightly sanious, containing greenish particles, which are but pieces of diseased fibro-cartilage. This pus dries up on the surface and adheres to the hoof and to the hairs, and some times irritates the surface of the skin. If one of these fistula become cicatrized, a fluctuating tumor soon appears, close to it, which rapidly ulcerates, and then gives rise to another fistula. If the disease is quite old, the hoof of the quarter corresponding to the necrosed cartilage, loses its perioplic band, becoming rough, rany and cracked, and the wall is thickened, because the irritation of the coronary band has stimulated its growth. This change in the condition of the wall varies with the length of time the disease has existed, and consequently, it indicates its duration quite accurately, when one remembers that the hoof grows downwards about one centimeter in each month.

When cartilaginous quittor is the sequelæ or complication of suppurative corn; of a punctured wound by a nail of the shoe; or any other affection of the foot, the symptoms proper to these diseases are first observed, though the lameness is greater, and the fistulæ of the quittor is evident. Often, however, this, instead of being external and on the coronet, is situated at the inferior part of the foot, at the internal face of the inferior border of the wall, upon the sole, and sometimes connected with the wound of some of those affections of the foot.

II.—*Pathological Anatomy*.—When one examines the cartilage affected with the necrosis proper of quittor, he always finds lesions in proportion to the intensity and the age of the disease. It is seldom, however, that the portions of the cartilage which have undergone the green degeneration, constituting the caries, reaches more than one centimeter in extent; they have the form of a small plate, of a green color, ordinarily elongated, and adherent to the healthy parts of the cartilage by one of its extremities, that which is more forward and the deepest. Others have compared it to the green growth of a seed in germination. The points of the fibro-cartilage which are in immediate contact with the carious portion, have also a slight, pale greenish hue. These are already diseased; there is already a beginning of necrosis; in the remainder of its extent this exfoliation is separated from the cartilage by a reddish, soft tissue, which also lines the inside of the fistulous tract. This fistula, which extends from the necrosed spot to the skin, is but the hollow tract left by the diseased process upon the cartilage, while gradually destroying its substance. Always lined with a pseudo-mucous membrane, by a true pyogenic apparatus, the fistula is often narrow, sinuous, irregular in its course and in its extent, especially if the disease is of some standing.

Renault, and after him Lafosse, have mentioned a special alteration of the fibro-cartilage which is sometimes met, and which Lafosse looks upon as a step towards recovery. It is a softening of the tissue, anatomically characterized by a loss of the consistency of the cartilage, resembling the case of the cellular tissue becoming indurated, or that of bones deprived of their earthy salts after soaking in weak acids; its yellowish color is then characteristic. It may be noticed during life, and is recognized by a softening in the region of the cartilage, which then yields, giving easily to the pressure of the finger. Besides this, a probe introduced into the fistulous tract readily penetrates into the softened substance. But the true way to diagnosticate this change consists in raising the coronary band or after thinning the wall; then one will see and may feel the true nature of the transformation. Lafosse adds that, in presence of this altera-

tion, the removal of the cartilage is no more necessary, for then the cicatrization is readily obtained by stimulating the sloughing of the necrosed tissue or by removing it.

With cartilaginous quittor there is always plastic infiltration of the cellular tissue surrounding the cartilage. Very often the wall of the synovial capsula of the articulation of the foot is somewhat thickened, and in that case there is less risk of injuring it during the operation.—(Rey.)

III.—*Progress, Duration and Termination*.—Left to itself, the caries of the fibro-cartilage may last for a long time, through difficulty in determining its true nature. Spontaneous cure, however, is not impossible, as Renault proved it, and as many practitioners have seen it, especially in young and healthy subjects, when the disease is mild at its onset and affects parts of the organs where the fibrous element predominates, as in the posterior portion of the cartilage. This fortunate result follows the sloughing of the “bourbillon” which makes its appearance under the shape of a greenish particle.

But, ordinarily, the disease progresses slowly, destroying the cartilage by degrees, and the diseased process ceases only when the caries has reached the ligament of the joint, which it sometimes also attacks. The tissue of the fibro-cartilages has not the force of reaction possessed by other inflamed structures, and which is so well marked in cellular tissue. A process of suppuration, such as rapidly eliminates the mortified structure, cannot very readily take place in it, and when by natural forces the carious spot is eliminated, and pushed outwards, the surrounding tissues are most commonly already affected. These undergo the same alterations, are eliminated in the same manner, and so until the entire cartilage is destroyed. This process of caries by repitation may last a year.

In its progressive stage, the disease may spread to surrounding parts, such as the os pedis, the plantar aponeurosis, the ligament of the joint, or the sesamoid sheath, all of which may become the seat of inflammation. They are diagnosticated by the greater pain and more marked lameness, symptoms which are comparatively light in the simple necrosis of the cartilage.

Finally, as a possible complication of cartilaginous quittor, one may observe an entire emaciation of the animal, an alteration of the fluids due to a putrid or purulent infection; some authors claim to have even seen glanders and farcy follow it; this is inadmissible.

IV.—*Diagnosis*.—Cartilaginous quittor is recognized only when there is a wound from which escapes the product of the suppuration and of the necrosis. This pus has nothing characteristic, notwithstanding what has been said. If it is thinner than that of a simple solution of continuity of the region, or that of simple quittor; if it is less foetid than that of bony caries; it has, however, of itself some special characters, varying according to the subject and the degree of the disease, and especially resembling much that of sub-horny quittor. If the escape of the pus is slow, and it is desired to carefully examine it, a simple pad of oakum, kept by a few turns of bandages on the fistulous opening, will, when removed, give a sufficient opportunity to recognize its nature.

The probing will often assist in distinguishing the cartilaginous from the simple or sub-horny quittors. In these last, the fistula is less profound, and does not reach the thickness of the cartilage; but, as in cartilaginous disease, the fistula is often sinuous, it is better to use a soft, flexible instrument, such as a fine probe made of lead. The injection of liquid may take the place of the probing; injected in a superficial tract, it returns outwards directly, while in deeper and irregular fistulæ, it will penetrate more readily. The induration of the coronet, the rough and ramy appearance of the hoof of the quarter corresponding to the fistula, indicate generally a necrosis of the fibro-cartilage; these characters are missing in the furuncle.

V.—*Prognosis*.—In consequence of the tenacity of the disease, this form of quittor is always serious; though this gravity has, in our days, greatly diminished, on account of the means of treatment now in use, which were unknown some thirty years ago. Now, this affection, which was considered by all hippiatres as almost incurable, and which more recently was treated by an operation which rendered the animal unfit for work for several

months, can in the majority of cases be cured in about fifteen days.

The prognosis, however, varies and depends on the complication. When there is caries of the ligaments, inflammation of the articulation of the foot, or of the sesamoid sheath, the extirpation of the cartilage itself, done with the greatest dexterity, is not even a warranty of recovery. It remedies only the necrosis of the cartilage, but leaves the other diseased processes to progress in such a manner that the animal remains worthless if he has not to succumb to them. The pain is, besides the other signs, one of the most important points to consider: very acute, it is generally a discouraging omen, and points to the existence of serious complications.

VI.—*Etiology*.—Heavy draught horses are more frequently affected, on account of their peculiar work. The most common cause is a bruise, a blow, a burn, a prick, any wound exposing the cartilage; it is most common on horses drawing trucks loaded with stones, which may drop on their feet and crush the fibro-cartilage. The same cause exists for horses working in extensive works of buildings; in the construction of railroads; and in the shops of mechanic construction.

Owing to these conditions it is also more common in large cities than in the country, and more frequent in stony and temporary roads than in those which are smooth and flat. Flat feet, with low heels, are more exposed than others, as well as those whose hoofs are soft. Quittor is more frequent in the fore than the hind feet, the fibro-cartilages of the fore feet being more developed and more flexible, and because their heels are generally lower than in the hind legs. In some, it is more common on the internal than the external quarters, while with us, it has been the contrary.

It is often a complication of suppurative corn; of punctured wound of the foot, of canker, of simple and sub-horny quittor, of grease, etc., which are then the determining causes of the disease.

(*To be continued.*)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 124.)

Johne and Vachetta point out that the periphery of the *actinomyces* tuft is not always so symmetrical as Harz has represented, and my own observations confirm this remark. When closely examined, many of the club-shaped cells towards the periphery will be found standing out prominently from the others, and measuring about 0.0019 mm. broad to 0.0740 mm. long.

Here and there are some fine, pale, faintly shining, single mycelium threads springing from the depths of the tuft, and appearing beyond its margin. Another tuft, or portion of one, mainly consists of such mycelium or hyphen-threads. Very exceptionally, there are seen at the peripheral end of these fine threads, a delicate pear-shaped expansion; and among them are larger pear or club-shaped cells, often crowded together; while not unfrequently are noticed isolated, and generally small tufts, which appear to be composed only of the very finest mycelia, and which Harz looked upon as aborted forms, but which Johnes considers young growths. Within the zone of the tuft, and especially towards the centre, are not only the upper surfaces or ends of the larger club-shaped cells visible, but also small shining corpuscles, which resemble micrococci. In the centre of the tuft, in addition, are extremely fine, but not very numerous mycelia; and beyond these, passing direct towards the periphery, are many mycelia with their extremity expanding into a long pear-shaped body, which has received the name of conidium, and of which there is generally only one for each thread. In breaking up or pressing the tuft, the conidia are very easily detached in the shape of conical or pyriform bodies, with in many instances the narrow end much elongated. The mycelium is irregularly branched, two

*From the Veterinary Journal.

or more conidia growing from each by means of their narrow extremity, something like a bunch of grapes.

The various forms the conidia may assume are shown by Johnne, Ponfick, Harz and Israel; but the most diverse opinions are entertained as to the development and growth of the fungus itself.

It is probable that when the fungus-tufts become calcified, as they are often found to be, their growth has ceased, and they can no longer fructify.

Culture experiments have hitherto not been very successful, so that we are still in the dark as to the process of, or length of time necessary for, development. Clinical observation and experimental inoculation, however, would go to prove that spontaneous or accidental actinomykotic tumors take longer to grow than those which are experimentally produced.

Israel was of opinion that the mycelium of the fungus obtaining access to the tonsils of mankind and there producing germs or spores, gave rise to actinomykosis; and Johnne believes he found corroborative evidence of this in making a careful examination of the tonsils in the section of a pig's head. Externally, these appeared quite healthy, and on pressing some of the glandulæ only the ordinary turbid mucus fluid they usually contain was expelled; but from others there was expressed a yellow, thick, grumous matter, something like pus, and which on examination by means of the microscope was found to have a very great number of *actinomyces* tufts of various sizes and in different stages of development, some of them even calcareous. A section of the amygdaloid cavity showed that it was much dilated, and its lymphoid tissue normal, as a rule; only in some preparations of the part did this tissue appear infiltrated with small cells. In some of the glandulæ were small, delicate, but rigid vegetable particles, which were for the most part fragments of corn or barley husk; and on close inspection there were perceived, either on the surface of these particles or clustered on the beard of the barley, with few exceptions, crowds of pear-shaped hyphenless conidia, which in form, size, etc., differed in no respect from those found in the actinomykosis nodules.

Johne subsequently examined the tonsils of twenty-four pigs which were apparently quite healthy, and with only two exceptions found them free from these fungi. He could never discover them in the tonsils of cattle.

Pathology.

There can scarcely be any doubt as to the etiology of actinomykosis. The *actinomyces* is constantly found in new formations of a special kind, and through its irritating and disintegrating influence it not only produces these formations, but sets up destructive processes in the tissues in which it may locate itself; and sooner or later, unless it loses its power or is removed from them, it causes their death. An *actinomyces* tumor must, therefore, be looked upon as what German pathologist designate an "infection tumor," and actinomykosis as an infectious disease.

As has been said, the tumors offer certain distinctive characters, and all tumors possessing these characters contain the fungus. Externally these growths, be they large or small, present various appearances; but they are generally round, lobular, or fungiform in shape, smooth on the surface, and soft in consistency, like the polypi-sarcomata, or somewhat hard, like the fibro-sarcomata or fibromata. In color they also vary—the latter being of a greyish-white, or light-yellow tint; the former are darker, less vascular, and often stained by blood extravasations. Studding the surface, and particularly in the softer variety, are generally seen a multitude of small, very yellow nodules, whose presence is really a diagnostic feature. On section, the typical character of the actinomykoma is best displayed. Imbedded in the fibrous stroma of the growth are noticed the various sized nodules, more or less numerous, small and isolated, or in confluent rounded masses the size of a hazel or walnut, grey or yellow in color, of a cheesy softness, and in the very smallest of them are a number of minute particles or centre, sulphur-yellow in tint, which are the clusters of the *actinomyces*. If one of the cheesy masses is submitted to pressure or teased out, these particles—which resemble lycopodium seeds—are slightly separated from the matter around them.

The majority of these are soft, something like tallow; others may be gritty to the touch, when they are impregnated with lime salts. Whether occurring in animals or man, these peculiar particles must always be considered diagnostic of the disease, even without the aid of the microscope.

When the nodules are removed from the connective-tissue stroma, this is found to be cavernous in its structure, from the large number of small cavities they occupied—another characteristic feature of the tumor.

I have already alluded to the histological characters of the nodules.

As to the manner in which, and channel by which, the fungus invades the tissues, there is no satisfactory evidence. It is, however, extremely probable that it enters, in the form of spores, through a wound, abrasion, fissure, or even by means of the delicate mucous follicles of the membrane lining the lips, mouth, pharynx and nostrils—in fact, any part of the digestive or respiratory canal. It has been shown that it may exist harmlessly in large numbers in the tonsillar glands of the pig, probably waiting for a casual abrasion or removal of the epithelium, in order that it may rapidly develop in the tissues beneath.

This injury may be inflicted in many ways, and very likely by the food upon which the animals most liable to the disease are fed. I am informed by a practitioner in Lincolnshire, that the malady is most frequent after cattle have been fed on straw, barley and chaff; and this may not only injure the mouth, but serve also as the vehicle for transmission of the fungus—straw being so often mouldy, and infested with vegetable parasites of various kinds.

The species of animal invaded by the *actinomyces* appears to have much influence on the pathological results. In man the tendency is to suppurative processes and metastatic abscesses; while in animals it is to new-formation tumors, and induration or degeneration of tissues—be they hard or soft; the extension of the fungus being progressive by means of its spores, which are disseminated, localize themselves, fructify and produce the characteristic changes in their surroundings. These spores may

find their way into the œsophagus, stomach and intestines, or into the bronchi and lungs, and there fructify.

That the disease is transmissible from one animal to another, there is now no reason to doubt, as the fact has been experimentally demonstrated by Johne and Ponfick. The experiments of these and others had previously failed, probably because the inoculation material was too old and had undergone change.

Johne subsequently employed quite fresh material, and was successful in three out of four experiments—the animals being two calves, a cow and a foal. The latter remained unaffected. The calves were inoculated subcutaneously behind the lower jaw and elsewhere, and a small quantity of the same material, which was derived from a tumor on a living cow, was also introduced into the peritoneal cavity. In one case death took place forty days after inoculation; the calf having lost its appetite, became emaciated and debilitated, and then succumbed. At the seat of inoculation, as well as in the abdomen, actinomykosis was markedly developed. In the second case, death took place 114 days after inoculation, and the results were found to be as marked as in the other instance.

The third case was a pregnant cow, which gave only a small quantity of milk. This animal was inoculated through the milk-duct of the teat. The inoculation was in a few days followed by inflammatory œdema, which soon became developed into phlegmonous mastitis. Without any treatment the inflammation subsided, but there remained a small hard swelling, which increased so much that in three months the quarter of the gland was double its normal size, and felt like a hard fibroma. No milk was secreted. The cow was killed 133 days after inoculation, and in the udder were discovered all the signs of actinomykosis; diffuse fibroma, with, in various parts, multiple spongy fibro-sarcomata, the interspaces of which contained the characteristic nodules or “granulation tissue,” enclosing the fungus.

Ponfick did not succeed in inoculating dogs or rabbits. He endeavored to produce the disease in cattle, by feeding them with infective material in the form of fresh nodules, but the results were negative. By subcutaneous inoculation and intraven-

ous injection, however, he was completely successful, and the lesions of the former were similar to those in John's cases. Injection of the material into the jugular vein produced, in the course of two or three months, typical new formations in the lungs. The details of these experiments are very interesting, and I regret I cannot transcribe them here. But they conclusively prove that the artificial production of the disease does not alter in any way its characters.

There is no record of any instances which might tend to show that the disease may be accidentally transmitted; though the fact that it is inoculable leads us to suppose that it may be conveyed from one animal to another, from one man to another, or from animals to man, and *vice versa*.

Ponfick relates the case of a woman, thirty-four years of age, who was attacked by the disease, and who had been for several years employed as a servant, in which position she was frequently among sick cattle, and these were affected with what the veterinary surgeon who attended them called "wurm"—the popular name in Germany for the malady under consideration. This is the only case of probable transmission recorded.

Now, however; that attention is likely to be directed to the disease by veterinarians and surgeons, we may be able to note its accidental transmission from diseased to healthy animals, and to mankind.

(*To be continued.*)

TEXAS FEVER.

NOTES OF AN OUTBREAK OF THAT DISEASE AMONG CATTLE.

BY M. R. TRUMBOWER, V.S.

(*Continued from page 115.*)

October 10th.—I was called on by Mr. William Echternach to see some sick cattle, four miles northwest of Sterling.

History: His cattle had been grazing all summer upon a field through which flows the Elkhorn creek, after passing through the fields of Martin & Gleason, David Wolf, and others; since about

the 1st of August they had been herded a part of each day on the field adjoining, over which field the Cherokee cattle had been roaming at the time of the freshet, July 1st.

On arriving at his place I found five head of cattle penned up in the yard, and one was left lying in the lane, unable to rise.

No. 1.---A roan cow, four years old. Was first noticed to be sick, manifesting dullness and stupidity the day before, and had diminished in the yield of milk; this morning had only yielded one half the usual quantity. I found her with head and ears drooping, nose dry, horns warm, eyes dull and rather prominent, pulse 80, respiration 26, visible mucous membranes of a natural color, eats some and ruminates.

No. 3.—Red cow, six years old. Yielded this morning only one half the usual amount of milk; appears wild and excitable, pulse 66, nose moist, horns cold, eats and ruminates, fœces very dark colored and of a normal consistency.

No. 4.—Red heifer, one year old. Pulse 76, respiration 26, horns cold, nose dry, very tender along spine, trembling violently.

No. 5.—White steer, one year old, pulse 72, respiration 20, stiff in gait, fœces coated with mucus.

No. 6.—Red heifer, two years old. Unable to rise, tremor of flank muscles, membranes of a yellowish tinge, breath hot and offensive, fœces covered with small clots of blood, urine bloody, head extended, lower jaw resting on the ground, indifference to surrounding objects and noises, pulse 120, respiration 40.

Treatment prescribed:

℞ Acid carbolici
Soda bi-carbonas, aa ℥ ij.
Glycerine, ℥ uj. M

Sig. Half an ounce to be administered in a quart of water every six hours. No. 6 to take it every three hours.

Feed to be given: green corn-stalks, boiled oats, with a little salt to each feed. I had them placed in a pen under shelter, the yearlings separated from the cows. No. 6 was left lying where she dropped.

The remainder of Mr. Echtinach's cattle were placed upon another field, some distance removed from where they had been.

October 11th—No. 1.—Pulse 70, respiration 18, nose dry, membranes of a decided yellow tinge, eyes prominent, horns cold, legs cold, drooping of head and ears, remasticates, fœces very dark colored.

No. 2.—Lies down most of the time, hair erected and dead-looking; horns hot, nose dry, eats very little, shows evidence of suffering pain, very hollow in the flanks, fœces very dark-colored, pulse 100, respiration 24.

No. 3.—Still excitable, horns warm, nose moist, legs cold, pulse 56, respiration 16, fœces almost black, gives one-half the usual quantity of milk.

No. 4.—Pulse 68, respiration 20, horns very warm, legs cold, nose dry, eats little, don't ruminate, and refuses to drink; very tender along spine.

No. 5.—The only thing I can notice abnormal is a disinclination to move. Same treatment continued, dose to be given every four instead of every six hours.

No. 6.—Died at 11 A. M. Was found within four feet of where she laid yesterday at 4 P. M., lying on the right side. A small passage from the bowels is harder than normal, a little blood and mucus adhering to the anus, a few drops of blood hanging to the hair on inside thighs.

Removed the ribs and abdominal wall of left side; found a small quantity of blood serum in the chest and abdominal cavities; lungs presented less congestion and emphysema than any yet examined; pericardial fluid bloody colored, considerable ecchymosis over the left auricle of the heart, and also of the apex of the corresponding side. No heart-clots whatever; blood very scanty, thin, and of a bright scarlet color. Spleen, weight three pounds and a-half; found an extravasated blood-clot on the superior border under the peritoneal covering two inches in width and four inches in length, caused by a slight rupture of the capsule of the organ. Liver, weight thirteen pounds; upper portion of lobes lighter in color than normal, evidences of fatty degeneration, bile in the gall bladder, a greenish brown, and ropy. Kidneys normal. Abomasum—internal coat; studded over with granular appearing pointed elevations, the cardiac end softened and con-

gested; mucous membrane of small intestines reddened and somewhat softened; urinary bladder filled with urine—the color of port wine; specific gravity 1012, coagulated by application of heat. Mesenteric glands slightly enlarged; uterus healthy, containing a three month's old foetus, *which had several small radiated petechial spots about the head.*

October 12th—No. 1.—Pulse 52, nose moist, horns warm, eats, drinks, and remasticates: rumen very hard—almost impossible to indent it with the fist; fæces still too dark-colored.

No. 2.—Pulse 76, and soft; eats, drinks, ruminates; fæces still too dark in color.

No. 3.—Pulse 52; lost the excitable appearance, eats, drinks, ruminates; fæces of a lighter color.

No. 4.—Pulse 60; don't eat, nor drink, nor lie down; appears uneasy.

No. 5.—Apparently well. Discharged Nos. 3 and 5; treatment continued, adding wine and vegetable tonics.

October 15th—No. 1.—Judging from her general appearance, she does not seem to feel exactly well yet; fæces of a lighter color and softer than on the 12th.

No. 2. Filling out rapidly, and apparently about well; fæces of a normal appearance.

No. 4.—Pulse 86, respiration 26, nose moist, don't eat, drink, nor ruminate, persists in lying down, very tender along spine, constipated, resting nose on ground, head extended, manifests stupor and indifference to surroundings, apparently suffers no acute pain, coughed once to-day for the first time.

No. 7.—Red heifer, 2 years old, brought up yesterday: pulse 66, respiration 20, nose moist, horns warm, saliva flowing from the mouth, eats very little, weak and not inclined to move, manure very dark-colored and hard.

No. 8.—Steer, 1 year old, brought up yesterday, noticed to be sick on the 13th, passed bloody urine last night, died to-day at 2 P. M. Post-mortem appearance, thin in flesh.

Upon removing the right shoulder, the areolar tissue was found distended with gas, forming small bladders or bubbles. Muscular tissue pale and bloodless, lungs presenting nothing

abnormal in appearance, the trachea and larger bronchii contained some white froth; heart ecchymosed over external surface, internally destitute of blood-clots, and the small amount of blood contained was very thin and watery, slight petechia in left ventricle. Spleen, weight three and one-quarter pounds, internal structure broken down. Abomasum presented several small ulcers and abrasions, and a general redness of the lining, as did also the small intestines. Liver, weight thirteen pounds; gall bladder contained about three ounces of very dark-colored bile of a granular appearance. Urine bladder contained about twenty ounces of a dull, red-colored urine. Hard balls of fæces, coated with mucus and clotted blood, were found in the blind end of cæcum.

October 20th—No. 1.—Pulse 56, gaining in milk; No. 2, pulse 54; No. 4, pulse 68; No. 3, yielding a full amount of milk.

In the afternoon I made another visit, accompanied by Dr. W. B. E. Miller, who concurred with me in pronouncing them all convalescent.

October 24th—No. 2 had a miscarriage, otherwise doing well.

On the 3d day of October, Mr. Echtinach found a yearling heifer dead in his pasture, making a total loss of three, and six recoveries in the herd of forty animals exposed.

ABORTIONING CATTLE.

BY JOHN FAUST, V.S.

From encouragement extended to me and the earnest request contained in the quarterly journal of William R. Jenkins, for some one to renew the subject of abortion in cattle, I have been induced to send you this article.

I cannot advance any satisfactory theory as to the cause of this malady among cattle, and the German medical treatises in my possession do not aid me in my researches.

The medicine prescribed and used by myself for the past few years in the treatment of aborting cattle is *viburnum prunifolium*, and it has been attended with remarkable success.

Camphor with opium according to Hartmann, and ferrum sulphuric according to John (Saxon Yearly Report, 1872, page 134), have afforded satisfactory results.

I first tried the effect of *viburnum prunifolium* on three short horn bred cows that had aborted three times successively, each carried under treatment to full term.

Of a herd of thirty natives, of which nine had aborted in a very short time, all cows with calf treated with *viburnum prunifolium* carried to full term. One which received no medicine aborted.

Next, a herd of forty Ayrshire grade were treated with V. P. in reduced doses to experiment. One heifer so treated was saved, and six aborted. I then resumed my usual dose and no more aborted.

A large herd of Jerseys, of which one-half of the heifers usually aborted, treated with Vib. P. no recurrence of the same. In my judgment this resulted from an epidemic of abortion among the whole herd about seven years previous.

At present am treating a small but very choice herd of Jerseys. Several of the herd having aborted I was called to treat them. Prescribed *viburnum prunifolium* and no abortion has since occurred.

Many isolated cases might be mentioned which have afforded the same satisfactory results.

Dose—One-half drachm every day in cases of infection. Threatened abortion, same dose every hour or two as the case may require and confine in large box stall.

The following extracts relating to the use of *viburnum prunifolium* as a preventitive of abortion, led me to try its effects upon cattle:

Dr. Phares, of Alabama, who has used the *viburnum prunifolium* very extensively, writes of his experience as follows in Hale's "New Remedies:—"

"It is nervine, antispasmodic, tonic, astringent, diuretic, and may be used to very good purpose in urinary affections, ophthalmia, aphthous sore month, chronic diarrhoea, dysentery, indolent ulcers, &c. It is an excellent remedy in colic, cramp, spasms,

palpitation and other affections incident to pregnancy, or arising from uterine disorders, and for after-pains. But it is particularly valuable in preventing abortion and miscarriage, whether habitual or otherwise, whether threatened from accidental causes or criminal drugging.

“It tones up the system, preventing or removing those harassing nervous symptoms, that so often torment, wear down, and disqualify the pregnant woman for the parturient effort. It enables the system to resist the deleterious influences of drugs, so often used for the purpose of procuring abortion. It is well known that the inner bark of the cotton-root is used by many to induce miscarriage, one pint of the strong decoction being sufficient for this purpose.

“The regular exhibition of the viburnum completely neutralizes the effect of the gossypum, compelling the delinquent mother, however unwilling, to carry the foetus to full term.

“Some farmers on whose plantations I have used this medicine and who have seen so much of its effects on negro women who always managed to miscarry, declare their belief that no woman can possibly abort if compelled to use the viburnum. This may be claiming too much for it. But it has certainly prevented abortion in every case in which I have ordered it for the purpose. Negatively, miscarriage has never taken place, so far as I am informed, in any case in which this medicine was used as a preventive.

“Brief notes of a few cases will give a better idea of my mode of employing this medicine.

“CASE I.—Mrs. —, widely known as an authoress, of very pale, delicate appearance, aged about twenty-seven, when some three months married aborted from injury received in leaping from the floor into bed. Once or twice subsequently she aborted at the same stage of pregnancy: once, I learned, twins. In disgust, she came under my care for severe intermittent fever, and on the 16th day of September, 1864, being again pregnant, she consulted with a view to prevent abortion. I ordered tincture viburni. She continued going on well for more than three months after the usual time for her misfortune, when, removing beyond

my reach, I lost sight of her. Several times she had to use the medicine very freely. I think it was on the 6th of October an artillery and cavalry fight took place near the house where she was boarding; her husband, wounded some time before this, was compelled to fly for safety; charges were made through the yard; a number of soldiers were killed about the place; the house was ransacked, an old gentleman living with the family murdered, yet she passed safely through this time of excitement and trial.

“CASE II.—In March, 1865, Mr. —— consulted me in regard to his wife. She had never gone to full term, but had had several children at the eighth month, all of them dying one month after birth. Frequent pregnancies and hemorrhages had seriously impaired her health, for improving which I ordered suitable remedies. To prevent premature parturition, she being again pregnant, I directed tincture viburnum. At the eighth month, as usual, labor commenced vigorously, with copious sanguineous discharge. Both were soon arrested by a free exhibition of viburnum. She went on till full term and gave birth to a healthy boy, who still survives at a year old.

“CASE III.—Mrs. M——, mother of several children, has for several years suffered much from dysmenorrhœa, hemorrhages and abortions, and is pale, feeble and despondent. I ordered iron by hydrogen to improve the blood and nervous system, Fowler’s arsenical solution to check leucorrhœa and prevent hemorrhage, and tincture viburnum to allay uterine congestion, pain, irritation and to tone up the reproductive organs. Some months afterward (March 2, 1865,) I was summoned in haste to see her. She was much improved every way, and supposed two or three months pregnant. Two bodies of troops had been ordered to form a junction and prepare for battle instantly at a point a mile distant, but visible from the upper story of the dwelling. Running hastily up stairs to see the array she was hurt; pains commenced, and, almost immediately, pretty free hemorrhage, which alarmed her excessively. A viburnum tree growing within a few paces of the house, I ordered infusions of the bark, which soon put a stop to both hemorrhage and contractions. On the 16th of August following, before day, she was alarmed by the escape of liquor amnii,

and I saw her early in the morning. As there was no pain, contractions or other indications of labor, I left her. This was a small leak, and she informed me that labor had been brought on in a previous pregnancy by a similar leak. About dark of the next day, forty hours after the flow commenced, I again saw her, and at 11 P. M. delivered her of a healthy eight months' child, which still survives.

"CASE IV.—January 25, 1866, Mrs. L., eighteen months married, had miscarried last year, in consequence of which she had suffered long and much, now pregnant and threatened with abortion. I ordered tincture viburnum thrice a day, oftener if necessary. She went on well till the 10th of April, when she was severely injured by a fall from her carriage. Strong uterine contractions ensued, but were arrested by the medicine, which had to be used freely for several days, gradually diminishing the quantity per diem. For nearly a week abortion was threatened, whenever the use of the viburnum was too long omitted. From this time she went on to full term without further accident, and was delivered of a large boy.

"CASE V.—January 25th, 1866, Mrs. H., married in 1862, has had no children, but an abortion or two, now pregnant, and threatened with abortion at the usual stage with her. I gave her tincture viburnum, with directions to use pro re nata. March 4th summoned again to see her. I find she has had considerable pains, contractions, and discharges for two days. She had taken the medicine as ordered, and was now up, easy, and the discharge a slight oozing merely. Ordered the medicine discontinued for the present. She had to use it again a month later, and from that time continued well, and at full term gave birth to a healthy child.

"CASE VI.—July 11th, 1866, Mrs. J., six or seven months pregnant, had had labor pains increasing in frequency and force for over thirty hours. I ordered tincture viburnum every hour, or as often as needed, until pains cease. Labor was soon arrested, and no further trouble has occurred.

"CASE VII.—Mrs. P., April 16th, 1866, has had severe colic, after noon, several days. Tincture viburnum was ordered and the dose was all required."

“VIBURNUM PRUNIFOLIUM IN THREATENED ABORTION AND IN MENORRHAGIA.—I send you a report of two cases in which tincture viburnum was used with success.

“CASE I.—On September 23d, 1878, I was summoned in haste to see Morilla, a colored woman, about thirty-two years old, who had received a wound from a fall. On reaching her home I learned that patient, while attempting to replace a rope in a well-whirl, had fallen from the well upon the sharp, ragged edge of a rail which was driven in the ground near by, with one end protruding, making a wound about five inches long, just above pubes, penetrating as far as the muscles of the abdomen. The woman being somewhat advanced in pregnancy, the shock brought on strong labor pains. After dressing the wound with ligature and adhesive strips, I made examination per vaginam, found the os considerably dilated, pains continuing regularly. I gave her tincture viburnum with directions to take the same quantity if the pains did not cease in one hour. Calling two or three hours after, I found the patient resting very quietly, with pains relieved. Woman recovered and will soon be confined.

“CASE II.—The next case was a case of menorrhagia (excessive menstruation), in which the various preparations of iron, ergot, etc., were used without relief. I finally put patient on a teaspoonful tincture viburnum, beginning with the medicine two days before her period. Flow was considerably diminished. Ordered her to repeat same at her next period, which she did with marked relief. Patient was a married woman, had been married two years, no children. After taking the viburnum a second time she became pregnant, and will soon have reached full term.

“The medicine acts, no doubt, as a uterine sedative, but I cannot explain the action. I would be very glad if I could see some thing in reference to it in your valuable journal.”—(D. B. Nisbet, M.D., of Georgia, in *Southern Medical Record*.)

The following is from an article read before the Homœopathic Medical Society of the State of Pennsylvania, by John E. James, M.D., Philadelphia:

“Mrs. R., mother of one child and the subject of a previous miscarriage, was pregnant about three months when, after jumping from an unusually high car-step, she was attacked with sud-

den flooding and pain, which continued at intervals for nearly two days before I was called. I found the hæmorrhage very profuse, the pains regular, the os partially dilated. The testimony of the mother of the patient was, that of a certainty the foetus had passed, but doubting it I prescribed the viburnum every quarter of an hour. Two or three doses wrought material change, when the time was gradually lengthened to two hours. The next morning pain and discharge were both stopped, and in a few days she was about as usual. Continued to full time, and was delivered of a healthy child.

“A peculiarity of the case, however, was that twice between this threatened miscarriage and the delivery, she was attacked with violent hæmorrhage without pain, giving rise to a fear of placenta prævia, but which was evidently caused by a partial detachment of the placenta. Cinnamon tincture cured both attacks.

Mrs. N., mother of one child and subject of one miscarriage, after a very long walk, was attacked in the night with a free discharge (a gush), followed by pain at intervals and continued flow. Upon reaching the patient in the morning, I prescribed rest (which she did not take), and viburnum every half hour. Improvement began immediately, and continued without any return of the trouble.

“Mrs. M., mother of three children and subject of several miscarriages, has mucous dysmenorrhœa, and quite frequent passages of moles at menstrual period. Was called last June and found the following symptoms: three months pregnant; chills slight; flashes of heat and oppressed breathing; headache; backache; nausea; vomiting; had great gush of blood followed by pains. Viburnum gave immediate relief, and there has been no return since.

“I have noticed that the cases which have responded the quickest to the viburnum are those with the great flow or gush of blood at or near the beginning of the trouble.”

THREE CASES ILLUSTRATING THE USE OF VIBURNUM PRUNIFOLIUM IN MISCARRIAGES.—(By M. V. B. Morse, M.D., Marblehead, Mass. Read before the Massachusetts Homœopathic Medical Society, Oct. 9th, 1878).

"CASE I.—On the morning of Dec. 4th, 1876, I was called to see Mrs. G. at the third month of gestation. She had been taken the night previous with strong labor pains, which had resulted in producing quite a flow, that was gradually growing worse. I had recently read an account of the action of *viburnum prunifolium* in cases of threatened miscarriages in Hale's "New Remedies" (third edition), in which Dr. Phares, speaking of the action of *viburnum*, says: "It is a preventitive in habitual miscarriages. It prevents miscarriages from any cause, especially when attended by severe pain. It has never failed to prevent a threatened miscarriage, as far as I can learn." I therefore prescribed *viburnum* in water, teaspoonful doses, repeated each half hour, with directions to keep her quiet in bed. The following day she was nearly well, but I continued the *viburnum*, at lengthened intervals, for some time. She had no more pain or sickness of any kind up to the time of her confinement.

"CASE II.—Jan. 31st, 1877, was sent for to attend Mrs. C., who had just passed the fourth month in gestation. She had been overtaxing herself with hard work for a number of days, which brought on labor pains, followed by a profuse flow. I prescribed *viburnum*, in water, to be taken each half hour, and enjoined rest in bed, as in the first case. The *viburnum* was continued for two days, after which time she felt quite well up to the time of her confinement.

"CASE III.—On the 25th day of April, 1877, I was called to attend Mrs. W., thirty years of age, in her fifth pregnancy. She had always menstruated regularly up to that time (except during gestation), and ordinarily enjoyed the best of health. On the twelfth day of January she ceased to menstruate for the last time, and now had passed the third month of gestation. At this time her sister was taken very suddenly ill, and died on the 17th day of April. The shock caused by the death of her sister was such as to induce slight labor pains, which had increased without interruption for nearly a week, and were attended with a slight flow, which had continued four days when I was sent for on the 25th. I now enjoined rest and prescribed *viburnum*, to be taken in water every half hour.

"I called the following day and found that the pains and flow had ceased, and she was feeling much better. I now gave the viburnum every two hours, with directions to take rest for a number of days.

"She continued quite well, not meeting with any symptoms, other than those she had experienced in her former pregnancies, except that there was no perceptible change in her size or form, as she advanced in gestation.

"She made the necessary arrangements to be confined about the 12th of October, but on the 17th of September previous, after washing her kitchen floor, she was suddenly taken in labor, and in about four hours was delivered of a foetus, which as near as I should judge, could not have been more than three and one-half months advanced. From the condition and history of the case, I am convinced that the foetus was retained in utero from April 25th until Sept. 17th, without any perceptible change in its development.

"The mother was kept in bed ten days following confinement, during which time the lochia was about the same in quantity and quality as is generally met in such cases; but her complete recovery was protracted to nearly three months.

"I have since met with five or six other cases of the same class, which have yielded promptly to the action of viburnum."

Dr. Farnham related the case of a lady who had aborted six times, and had been subjected to a variety of treatment. The accident always occurred before the third month. Being put upon viburnum prunifolium she went on until the sixth month. Then, at a time corresponding to a menstrual epoch, death in her family caused her to be hurried out one stormy night and taken quite a distance in a carriage. Premature delivery took place, the child being born alive and living twelve hours. In the next pregnancy no other remedy was used, and no local treatment employed. She was told to rest four days at the periods corresponding to menstrual epochs, and to attend to ordinary hygiene. She went on to full term, and gave birth to a child weighing twelve pounds. Having had excellent results with viburnum prunifolium, he had used that to the exclusion of the viburnum opulus.

EDITORIAL.

EMPIRICISM'S DEATH-BLOW.

The quiet observer who may for years back have watched the progress of veterinary science in the United States, could use no better proverb than "Slow but sure," in noticing the advance which the science has slowly but steadily made in the last few years. Indeed, there has been scarcely a space of twelve months without some steps forward being made.

But a few years ago we had but one veterinary school; now a number of them are in running order. But a short time since there was only one veterinary journal; now there are three. Little gatherings of veterinarians, pompously calling themselves societies or associations, were now and then met with. In our day we have organized societies, with charters, constitutions and by-laws. And now there is another feature in recent progressive action: that is, the formation of State Veterinary Conventions.

Illinois, which first created the position of State Veterinarian, has again been the leader, in calling her practitioners together to a State Convention. She has done so, and so far as the news reach us, incomplete as they are, the affair has been a success. So much so, in fact, that we find the example is likely to be followed by other States. Wisconsin, Iowa, Michigan, Ohio, and perhaps more of the Western States are inviting their veterinarians to meet to organize and discuss the subject of the advance of veterinary science.

This great move cannot be ignored; and it is to be hoped that the West shall not remain alone in it. The Eastern States ought to act also at once; they ought also to call their veterinarians together; they ought to form their State Associations; and when once each State in the Union has her State Veterinary Medical Association, how easy it will be for all to unite under a grand body, the *American Veterinary Association*.

And what will be the true end and meaning of these gatherings, of these conventions, of those great State Associations, and of this grand National Veterinary Society? It will mean death to empiricism, to the ignorant practice of our profession.

Regular graduates may have, and again try by years of labor to elevate the profession from its low standing. Private veterinary schools may by degrees and with time have succeeded in throwing through the country enough educated men to chase the ignorant from the place they now occupy—but how many long years would it have taken? Illinois has done it at her convention—and we believe it can be done all over the country. And the essential factor, in fact the one without which it probably would not have taken place is—that is, if we are correctly informed—that the majority of these men were self made men; men who had made their way by hard work and honorable labor; men who, deprived of the opportunity of veterinary instruction, have themselves felt the duty they owed to the profession of their choice, and have paid it by organizing an association whose respectability cannot be ignored, and whose honor shall oblige to reject from its membership any undeserving applicants. They formed that association, organized it, and now are coming well prepared before their Legislature with an act to regulate the practice of veterinary medicine and surgery, which we sincerely hope will pass.

In the action of the Veterinary Society of Illinois, in that which will follow from other Western States, and which we shall probably see taking place all over the country, we feel that empiricism will receive its most terrible blow by the brotherly union of all practitioners of veterinary medicine all over the country.

By all means let us have nothing but State Veterinary Conventions until the great association is formed.

BILLS REGULATING THE PRACTICE OF VETERINARY MEDICINE AND SURGERY.

We reprint in this issue the bill which was presented to the Legislature of Pennsylvania, and that which is to be sent to that of Illinois. The first was killed through the efforts of Keystone Veterinary Association. A careful reading of the two bills show how much more progress and truthful advancement there is in the Western than in the Pennsylvania document. It was a good thing the bill failed to pass.

REPORTS OF CASES.

CANINE SURGERY—PROLAPSUS RECTI.

BY W. D. CRITCHELSON, D.V.S., HOUSE SURGEON.

Late in the afternoon of Wednesday, April 4th, there was brought to the hospital of the American Veterinary College a valuable fox terrier pup, owned by Mr. G——, of this city. On examination, the rectum was found everted and protruding about one and one-half inches beyond the anus.

The mucous membrane was very much swollen and highly congested. The little animal evinced much pain. He had been well, and nothing unusual was noticed about him until that morning, when he was found in his present condition.

The opinion was that it was due to constipation. The protruding intestine was washed with cold water, and after several moments' manipulation replaced in its normal position.

A pessary, made of soap rolled in powdered opium, was then introduced into the rectum, and chloral, grs. x., in pill form, was given.

A piece of elastic bandage, two inches wide, was then secured lengthwise of his body, with an opening through which his tail was allowed to protrude. A sponge was then placed under the bandage, over the anus, to assist in retaining the intestine. About ten o'clock that evening it was again everted, owing to the animal's efforts to defecate.

It was replaced, and next morning was found protruding; replaced again, as it was several times during the day. April 6th, replaced several times, and syrup of blackthorn, 3 j., given, as the animal was straining and trying to pass fecal matter. April 7th, as all efforts to retain the intestine had failed, it was decided to amputate it.

After the dog had been etherized, Dr. Coates performed the operation by the use of the ecraseur. Two inches were amputated, and the mucous and muscular coats were then secured to the anal opening by six stitches.

An injection was then given, and the animal remained quiet

till evening, when he began to manifest severe pain, and died about ten o'clock.

Post-mortem was held the next morning. Incision was made on the median line, and the symphysis cut through. When this was done, the amputated end of the rectum was found to be free to move in the pelvic cavity.

The stitches did not hold. Very little liquid fecal matter was found in the intestinal tract, but quite a large number of parasites (lumbricoids) were found in the small intestines. In one place they were coiled together, nearly filling the caliber of the gut. These were no doubt the exciting cause of the above condition. All the other organs were healthy.

PUERPERAL ECLAMPSIA.

BY THE SAME.

Sunday morning, April 29th, a call was left at the hospital to call to see a skye terrier bitch which had given birth to two pups the night before. As she was young and this was her first litter, the owner was quite anxious about her. Upon examination, it was found that she had prolapsus of the uterus, which was washed and replaced, and tr. opii., gtt. viii., pot. bromide, grs. vi., was given in solution. Then left with directions to repeat the dose of pot. bromide every two hours till relieved of pain. Tuesday morning, May 1st, the owner brought her to the hospital for treatment. She had been having convulsions one after another, and they were afraid that she would bite some one. When received she lay quietly wrapped in a shawl, with her eyes closed and seemingly exhausted. There was a slight discharge of a whitish mucous, tinged with blood, from the vagina; it had very little odor.

There was general weakness with loss of power, well marked in the posterior extremities when she was induced to walk a few steps.

Before my examination of her was completed she lay down and rolled on her side, then raised herself on her anterior extremities. Her head was carried upward, backward and to one

side. The eyes were widely open and the pupils dilated. She was then taken with tetanic convulsions of all the voluntary muscles and fell on her right side, where she lay, opening and closing her mouth, while frothy saliva flowed from the commissures.

Her head, which was extended, would be raised from the floor only to fall as contraction and relaxation took place. The breathing was stertorous. Her fore legs were extended, while the hind ones were partially flexed at the hocks.

The duration of the spasms varied from a few seconds to several moments, recovering from one only to pass into another.

Pot. bromide, grs. x, was given. In about an hour the animal was free from spasms, but lay in a comatose condition, insensible to everything around her. Would not take nourishment.

Lay in this condition till afternoon, when she began to notice objects around and took a little alcoholic stimulants and milk. Later on she walked around the room, but was very weak behind.

During the early part of the evening the spasms returned and continued with intermissions till about eleven o'clock. During this time she received pot. bromide in grs. x doses.

Shortly after eleven o'clock I left her in a very weak and comatose condition.

The next morning at half-past six she was walking around the room, looking quite bright.

Gave her some stimulants and milk, and as she had not passed any fœces, I gave her an injection and unloaded the rectum of the hardened feces with which it was impacted. Urine had been passed during the night. I injected solution of carbolic acid into the vagina. Improved all the morning.

Temperature, $101\frac{1}{2}^{\circ}$ Fah. Drinks milk; gave small doses of stimulants. Milk secretion almost entirely suspended. No pain; pupils contracted. Had no convulsions during the day, but is weak and acts as though only partially sensible to objects around her.

Thursday quite lively; drinks milk; loss of coordination not as well marked. Has slight chronic spasms. One dose of pot. bromide had the desired effect of controlling these spasms.

No fœces had yet been passed, so gave another injection. Only slight discharge from vagina. Injected weak solution of carbolic acid and sent her home, with directions to let the puppies suckle her and see if the milk secretion, which was then nearly suspended, could be stimulated.

The following Sunday morning I saw the little animal in the street apparently as well as ever. The owner said that she was giving full nourishment to her young, which were doing nicely.

EXPERIMENTAL PHYSIOLOGY.

CONCERNING THE ACTION OF THE OXYGEN OF AIR IN THE PSEUDO-INSTANTANEOUS ATTENUATION OF VIRULENT CULTIVATIONS BY THE ACTION OF HEAT.

BY M. A. CHAUVEAU.

In the method generally employed for the application of the process of rapid attenuation of virulent cultures, the presence of the atmospheric oxygen while the attenuation is taking place, is a necessary condition. It is a fact well established by the valuable researches of M. Pasteur, that oxygen is a very active attenuating agent of the virulency of infectious microbes. Would it not be that to the action of this agent, during the heating, is due the attenuation which is attributed to the action of heat? At least, would not oxygen contribute, more or less, to the production of the attenuating effect? These are questions deserving the most careful study. From experiments made, M. Chauveau concludes, not only that the presence of air does not act in the attenuation obtained by the charbon virus by heating it, but it takes better—much better—in the absence than in the presence of oxygen. With this gas, the virus presents a diminished resistance to the attenuating action of heat.

He adds: "One would be tempted to find a contradiction between these results and those so brilliantly presented by M. Pasteur, for the institution of his solid method of attenuation of viruses by the action of oxygen." This would be wrong. The conditions of the two orders of experiments being different, it would be sur-

prising if the results had been identical. What must be borne in mind from the results obtained by M. Chauveau, is that the method of attenuation of viruses by heat has its individuality and importance, which it will be necessary to take into consideration.—*Gazette Medicale.*

UPON THE DIMINUTION OF THE VIRULENCY OF THE BACTERIDIE OF ANTHRAX, UNDER THE INFLUENCE OF ANTISEPTIC SUBSTANCES.

BY CH. CHAMBERLAND & ROUX.

Phenic acid and bichromate of potassa were used in these experiments. According to the dose of the antiseptic agent, the bacteridies lose more or less of their virulent properties, cease to produce spores, and die.

The diminution in the virulency of the bacteridies as thus modified is, however, only temporary; it returns to them by culture. M. Pasteur has shown that in Toussaint's method, when bacteridies were attenuated by heating for ten minutes at 55°, the attenuation was only temporary, their culture continuing virulent. M. Chauveau, in recent experiments, has shown that bacteridies deprived of their germs and attenuated by a heat of 45°, during two or three hours, would regain their virulency by culture. Bacteridies attenuated by antiseptics, whether they give germs or not, preserve in repeated cultures a diminished virulency. It seems, then, that the varieties of bacteridies thus created are so much the more fixed in their new virulent properties, proportionately as the modifying effect has acted on them the more slowly.

Further experiments authorize the writers to say that other antiseptics exercise upon bacteridies an analogous action to that of phenic acid and bichromate of potassa. At any rate, the dose of antiseptic necessary to produce a determined effect varies with the composition of the bouillon of culture. Each variety of bacteridies has a special action upon the diverse species of animals. For instance, bacteridies reduced by the bichromate of potassa can kill sheep, or at least make them very sick (they are then vaccinated), while they remain harmless upon guinea-pigs and

rabbits which are not even vaccinated. Then, again, bacteridies attenuated by heat (culture at 42°, 43°), may kill guinea-pigs and rabbits, and still remain without effect upon sheep, and do not vaccinate them. This shows how prudent one must be in the choice of vaccine matters which may be used in practice.—*Gazette Medicale.*

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The fourteenth regular meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, June 12, 1883, at eight o'clock, with the President, Dr. Liautard, in the chair. The minutes of the last meeting were read and approved.

The President then called the attention of the members to the subject for discussion—"scarlet fever in horses." He said that articles having been published in some of the medical and daily papers, speaking of scarlet fever occurring in horses, and being considered by some as a possible origin of outbreaks in the human family, the subject was deserving of attention on the part of veterinarians. On being asked to express his opinion on the matter, Dr. Liautard said that the disease which had been most recently described by Prof. Williams, had also been mentioned by others, amongst whom were Percivall and Haycock; that he personally, as far as he knew of scarlet fever in man, had never met with an affection of horses which could be compared to it; that he had seen cases of so-called scarlatina as described in the text books, but considered them as mild forms of purpura with laryngeal complications, and that he had never observed the many essential symptoms of scarlet fever, nor that of desquamation; that he was now engaged in various experiments in relation to the matter, and would be pleased to let them known to the association afterwards.

Dr. L. McLean thinks Prof. Williams made a mistake in calling the disease, as he describes it, scarlet fever.

Dr. Michener has never seen a case of scarlet fever in the horse, but has seen a mild form of purpura hemorrhagica, with symptoms similar to those described by Williams as the symptoms of scarlet fever.

Dr. Coates has seen cases of scarlet fever in the human family, but has never seen the same symptoms in the equine species; says that Williams has taken the statements of other men, and copied the symptoms of scarlet fever from some work on human medicine.

Dr. Dixon thinks Williams is right in calling the disease, as he describes it, scarlet fever. Has seen cases similar to it, and treated them as such, although the temperature has been higher than the temperature given by Williams; the petechial spots he saw, also the swelling of the limbs.

Dr. Coates wanted to know what kind of spots Dr. Dixon had seen.

Dr. Dixon replied, that the spots he saw were similar to the spots described by Williams; they could be seen on the mucous membranes of the nasal cavities and on the membranes of the eye; would be there one day and disappear the next. Has seen cases become worse gradually, and the swellings of the limbs were not the swellings of purpura.

Dr. Robertson has never seen a case of scarlatina in the horse the same as the scarlatina in the human family, and does not think there is any contagious disease in the equine similar to scarlet fever of man.

Dr. Crane has never seen a case of scarlet fever in the horse as described by Williams.

Dr. Dixon, in answer to Dr. Liantard's question, as to how many horses there were in the stable where he was treating his patient; replied there were forty horses or more.

Dr. Liantard then said, as scarlet fever is contagious, how was it there were not more cases in the same stable. Dr. Liantard said that he did not know of any author, whether French, German or Italian, who agree that there was such affusion as scarlet fever in horse.

On favorable report from the Board of Censors, Dr. H. W. Bath was elected to membership.

Dr. Michener proposed the name of Dr. C. Bretherton for membership, which was referred to Board of Censors.

Dr. Dixon was appointed essayist for the next meeting. Motion to adjourn was carried.

W. S. DEVOE, *Secretary*.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Keystone Veterinary Medical Association was held on the evening of May 5th.

The bill regulating the practice of veterinary medicine and surgery, now before the State Legislature, was taken up and discussed, and the society, deeming it unworthy the commendation of the true profession, decided to oppose the passage of the same, and each member was instructed as to his duty in this matter.

The essayist of the meeting, Dr. Goentner, then read a paper on azoturea or uræmic poisoning. After defining the disease, the essayist referred to several analyses of the urine he had made, in which he found traces of sugar. On learning of the tests made, Dr. Zuill contended that it might be the result of the tests used, and not from its presence in the urine. The essayist dwelt more especially upon the forms of treatment, which varied very much in each case, and showed very remarkably favorable results in his cases. Dr. Zuill strongly advocated bleeding in these cases, while Drs. Glass and Hoskins opposed it in great measure, on the grounds that this would but slightly lessen the amount of uræmic matter present in the blood. The use of sudorifics was highly extolled by the use of blankets, &c.

After hearing the reports of several cases the society adjourned.

The regular monthly meeting for June was held on the evening of June 2d, at 8:30.

Among the reports from the committees was one in regard to the defeat of the bill presented before the State Legislature for the regulation of the practice of veterinary medicine and surgery. It contained so many vicious features that the Society at a previous

meeting determined to oppose it, and were rewarded by a severe defeat of the bill.

Several important communications were received, of deep interest to the profession, which will be reported to the REVIEW at an early date.

Dr. Wm. L. Zuill then read an essay upon "Tetanus in the West Indies." Owing to the lateness of the hour at its conclusion, no discussion followed, and the meeting adjourned.

W. HORACE HOSKINS, *Secretary*.

The writer would again call the attention of the alumni of the American Veterinary College to a desire upon the part of that Association to compile a directory, &c., of its members, who will please forward their names and any interesting data to 254 S. 15th street, Philadelphia, Pa.

W. HORACE HOSKINS, *Secretary*.

CORRESPONDENCE.

STRICTURE OF THE DUODENUM AND ULCER OF THE STOMACH.

Editor Review:

At midnight of the 17th inst. I was called to see a grey road-mare, 11 years old, said to be suffering with colic. The history of the case was a short and simple one: The mare had been in the best of health up to midnight, when she lay down as usual for the night's rest. In a few seconds' time she arose, appeared quite uneasy, and broke out with a profuse cold sweat. Twenty minutes later I saw her, with the following symptoms presenting themselves: The patient was quiet, the body cold, wet and clammy, with a perspiration which had been so profuse that it ran down the legs in streams. The breathing was regular, not accelerated, but almost entirely abdominal. The temperature stood at 99° F., and the mucous membrane was normal. The pulse could not be felt at the jaw, but the heart-beat was at 40 and sounded weak. At intervals of several minutes the patient would become uneasy, turn round and round in the box, always to the right, and occasionally would carefully lie down, roll on

the back and lie for a minute or two, then arise. A rectal examination revealed nothing. Percussion resulted in the finding of a dull spot about the size of a man's head in the lower posterior part of the chest. Auscultation showed the respiration to be very superficial. Considering the displacement of lung tissue, the suddenness of attack, and the nervous shock, a probable diagnosis of rupture of the diaphragm, with hernia of the small intestine, was made. This belief was increased when, after a few hours' time, the dull spot disappeared from the right side of the chest, grew larger on the left side, and gradually became tympanitic. That obstruction to the passage of food from the stomach existed, seemed conclusively proven by the frequent eructation of gases and vomiting of the contents of the stomach. Considering the case hopeless, grain doses each of atropine and morphine were given every four or six hours, with an occasional dose of ammonia and chloride of lime to relieve the stomach of gas. After a sickness of 35 hours, the patient died suddenly from a failure of the heart, and a post-mortem examination was made. The stomach was distended to its very greatest capacity with gas, partly digested food and fluids. On the floor of the left cul-de-sac, near the great curvature and near the line separating the dense from the soft mucous membrane, three ulcers were found. Judging from the appearance of the largest one, they had existed for a long time, and yet the patient had never been sick, was in the best condition possible, and was always a free, prompt driver. I forward you, by express, the specimen.

On examining the small intestine, it was found to be greatly distended in the form of a sac, from near the pylorus backward, to the distance of twelve inches, where it terminated by a stricture which partly closed the canal. Yet it was sufficiently large to permit of the passage of the little finger. But little alimentary matter had recently passed the stricture. The mucous membrane lining the sac, and the stricture, was deeply discolored by blood. I should like to ask what caused the apparent great nervous shock? Did the patient suffer from angina?

A. A. HOLCOMBE, I.V.S.U.S.A.

FORT LEAVENWORTH, Kas., April 20, 1883.

CÆSAREAN OPERATION ON A BITCH.

WORCESTER, May 22, 1883.

Editor of Veterinary Review:

DEAR SIR—I was called on the morning of May 9th to attend a small skye terrier bitch which I was informed had the day before given birth to one dead pup and had since been in severe labor without making any progress.

On examination could just feel the head of a pup, and after about half an hour came to the conclusion that delivery could not be had per vagina, and suggested the Cæsarean operation, which the owner consented to.

Placing her under ether, I made a section on the median line through the abdominal walls exposing the uterus. I incised it about two inches and removed two fœtuses. I closed the uterine opening with carbolized catgut sutures and the abdominal opening with the same. After the operation the bitch was placed on a clean straw bed and covered with a rug, and was not disturbed until the next day, when some milk was offered, of which she drank but little.

She remained very quiet for four days, during which time she was given about a gill of milk punch three times a day. The fifth morning, she appearing brighter, some milk was offered, which she drank eagerly, after which time she improved rapidly, so that at the present writing—May 22d—she is capering about my feet bright and smart as if there was no such operation as gastro-hysterotomy.

JOHN B. COSGROVE, D.V.S.

VETERINARY LEGISLATION.

AN ACT to regulate the practice of veterinary medicine and surgery in the cities of the first and second class.

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same: That the standard qualifications of a practitioner of vete-

rinary medicine and surgery or any one who may attempt to practice singly or jointly veterinary medicine or surgery in cities of the first and second class shall be and consist of the following, namely: A comprehensive and practical knowledge of comparative anatomy, physiology, chemistry, materia medica, the practice of veterinary medicine and surgery, hygiene, and a good moral character.

SECTION 2. The possession of a diploma, regularly issued by a veterinary school acting under a charter from this or other State or country, shall constitute the sufficient and necessary license for the person to whom such diploma is granted to practice singly or jointly veterinary medicine and surgery, as set forth and empowered in said diploma. *Provided, however, that a diploma that has been, or that may hereafter be granted for a money consideration or other article of value alone, or that has been, or may hereafter be granted to any one who has not pursued the usual course of studies required by a legally chartered veterinary school, shall not be considered as sufficient qualification under this act. And provided that veterinary schools or colleges organized as aforesaid, shall upon application, without examination, issue a diploma to any person who has studied, or may study for five consecutive years in the office of a practicing veterinary surgeon, the branches set forth in the first section of this act, or who has for five years before the passage of this act been continuously engaged in the practice of veterinary surgery and medicine.*

SECTION 3. Any practitioner who may not have a diploma, as provided for in section two of this act, and who may not be qualified as hereinafter provided, shall have the privilege of applying to the president and officers of the Pennsylvania College of Veterinary Surgeons, or any other legally chartered veterinary school, for an examination in the various branches of medical science and art as set forth in section one of this act. Whereupon, it shall be the duty of the president, or in his absence, the vice-president of said college, to notify the applicant of the time and place of the next meeting of the college, and also to furnish him with a copy of the constitution and by-laws of said college, and

when said applicant personally appears at a regular meeting of the college, to instruct the faculty and Board of Censors to examine him according to section four, article three, and section five, article eleven of their constitution, which reads as follows :

“SECTION 4—Article 3. Persons applying for senior membership shall be examined by the faculty in their respective branches, after which a ballot shall be taken by the same, and if the majority vote in the affirmative they shall be referred to the Board of Censors.

“SECTION 5—Article 11. A two-thirds vote of the Board of Censors, composed of not less than six veterinary surgeons whose names shall be affixed with the diploma, will be necessary to entitle the candidate to a degree of doctor of veterinary medicine and surgery.” And it shall be the duty of the president and officers of said college, when the applicant is found to be qualified, as set forth in section one of this act, to grant such applicant, on receipt of thirty dollars, (which sum shall be used exclusively for the benefit of the college), a certificate of membership signed by the proper officers. And said certificate shall be the sufficient license for the person to whom it is granted, to open an office in any city of the first class for the practice of veterinary medicine and surgery.

SECTION 4. Any of the faculty or Board of Censors who shall be found guilty of receiving, directly or indirectly, any other compensation for instituting such examination than that which is herein provided, shall be punished by a fine or imprisonment, or both, at the discretion of the court, the fine not to exceed five hundred dollars, and imprisonment not to exceed one year.

SECTION 5. Any person violating the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction thereof shall be sentenced to pay a fine not exceeding fifty dollars for the use of the county wherein such misdemeanor is committed. Any person so convicted shall not be entitled to any fee for services rendered, and if a fee shall have been paid, the same may be recovered as debts of like amount are now recoverable by law.

AN ACT to regulate the practice of Veterinary Medicine and Surgery in the State of Illinois.

SECTION 1. Be it enacted by the people of the State of Illinois, represented in the General Assembly : That no person shall be permitted to practice as a veterinary surgeon, by either prescribing for, or treating any domestic animal for any disease, injury or ailment whatever, without having previously obtained a diploma from some college, authorized to graduate students in veterinary medicine and surgery, or is a recognized member of the Illinois State Veterinary Medical Association, or who has passed a satisfactory examination before an appointed board for that purpose.

SECTION 2. Every person holding a diploma from any veterinary college, or certificate of membership of said Veterinary Medical Association, or from the Board of Examiners appointed, shall, previous to his engaging in the practice of veterinary medicine and surgery, have said diploma or certificate recorded in the office of the clerk of the county in which he resides ; and the record shall be endorsed thereon. Any person removing to another county to practice, shall procure an endorsement to that effect upon his diploma or certificate from the county clerk and shall record the diploma or certificate in like manner in the county to which he removes. The holder shall pay to the county clerk the usual fees for making the record.

SECTION 3. Any person shall be regarded as practicing veterinary medicine and surgery within the meaning of this act, who shall profess publicly to be a veterinary surgeon, and who prescribes for or treats sick and injured domestic animals. But nothing in this act shall be construed to prohibit gratuitous services in case of emergencies.

SECTION 4. Any person practicing veterinary medicine or surgery in this State, without complying with the provisions of this act, shall be punished by a fine of not less than fifty dollars nor more than two hundred dollars, or by imprisonment for a period of not less than thirty days nor more than two years, or by both fine and imprisonment for each and every offense. Any

person filing or attempting to file as his own, the diploma or certificate of another, or a forged or fictitious diploma or certificate, upon conviction shall be subject to such fine and imprisonment as are made and provided by the statutes of this State for the crime of forgery.

NEWS AND SUNDRIES.

LARGE MULE.—A mule in Kansas City is eighteen hands and three inches high. It weighs 1975 pounds.

PREVENTION OF MAMMARY ABSCESS.—Equal parts of chloroform and glycerine, well shaken and quickly applied and covered with oil silk, is highly recommended.—*Druggists' Circular.*

POLYORCHISM.—A case of polyorchism was observed in Bulgaria, in a farmer eighteen years of age. There were three testicles, two being on the right in the scrotum, one above the other.—*Med. Record.*

EXTERMINATION OF HOG-CHOLERA.—It is said by officers of the Department of Agriculture that hog cholera has been practically exterminated. Unsuccessful attempts have been made for weeks past to secure virus from infected hogs for experimental purposes.—*Am. Cultivator.*

FERTILITY AT ADVANCED AGE.—A Darlington correspondent informs the *London Live Stock Journal* of a remarkable affair which has taken place in that town. Mr. Trees, Parkgate, Darlington, has in his possession a pony aged thirty-four years, which gave birth to her first foal on the 28th April last.

SUPERFETATION.—Mr. B. B. Olds, of Clinton, Wis., writes us that a two-year-old Poland-China sow, on his farm, on the 16th of April last, was delivered of nine good pigs, and that twenty days thereafter she was delivered of fourteen more. Certainly a very remarkable occurrence.—*Breeders' Gazette.*

REPORTED PLEURO-PNEUMONIA.—Pleuro-pneumonia was assigned as the cause of the death of some cows at Washington

lately, but the veterinarian of the Agricultural Department, Dr. Salmon, avers, after an autopsy, that there was no internal evidence of contagious pleuro-pneumonia.—*Farmers' Review*.

RATION OF HAY FOR A HORSE.—The experiments of Wolff and others, at German experiment stations, shows that a horse weighing 1,100 to 1,200 pounds would eat from twenty-two to twenty-seven and a half pounds of hay, if no other food was given. With grain, twenty to twenty-five pounds was usually eaten by working horses of that weight. Lighter horses would not need quite so much, but we can find no data of experiments with horses weighing less than 1,000 pounds.—*Country Gentleman*.

BILL TO PREVENT SPREAD OF GLANDERS.—Another good thing the Illinois Legislature has done, is the passing of Senator Gillham's bill to prevent the spread of glanders, and appropriating \$10,000 to pay the cost of stamping out the disease where it now exists. The same Senator, the sterling friend of farmers, and a farmer himself, has pushed through a dog law which promises a new lease of life to the sheep industry in this State.—*Prairie Farmer*.

SALICYLATE OF ZINC.—This salt is very soluble in water, and dissolves also in alcohol and ether. The medical properties attributed to salicylate of zinc are that it forms a valuable antiseptic and astringent agent. In certain kinds of cancerous ulcers it has, we are told, given some excellent results, and has been used successfully in gonorrhoea, as an injection, in solution containing one-half to one per cent. of the salt. Messrs. Poignet and Demarres, two French pharmacists, assert that it is preferable to sulphate of zinc as an astringent in ophthalmic affections, and in other cases, since it combines with its astringent action the antiseptic properties of salicylic acid.—*The Monthly Magazine of Pharmacy*.

A SINGULAR DEFORMITY.—The *St. Paul Daily Globe* says: May 27 there was dropped at the stock farm of Geo. W. Sherwood, located at Sheldon, Ia., by a mare sired by Hughy Angus, son of Swigert, a bay colt to Raymond, son of Alden Goldsmith, with five legs. The deformity commences from the inside of

the knee of the left fore-leg, the double formation being connected until just above the ankle, where the two become distinct, the only difference between the two being that the inner is a trifle smaller and shorter than the regular limb, so that the foot does not touch the ground when he moves around. The colt is otherwise perfectly formed, large, vigorous and active, and walks and runs without apparently suffering any inconveniences from the extra limb.—*Turf, Field and Farm*.

PROGRESSIVE ILLINOIS.—At last Illinois has a State Veterinary Association, and we believe it will result in great benefit to the live stock interests of the State. The organization was perfected at a meeting of veterinary surgeons in Chicago last week by the election of the following officers for the ensuing year: President, Dr. A. H. Baker, Chicago; Vice-Presidents, Drs. William Sheppard, Ottawa; I. J. Miles, Charleston; J. D. Tenthill, Chicago; Recording Secretary, Dr. J. Hughes, Chicago; Corresponding Secretary, Dr. J. F. Ryan, Chicago; Treasurer, Dr. W. L. Williams, Bloomington; Board of Censors, Drs. N. H. Paaren, Chicago; W. Sheppard, Ottawa; R. J. Withers, Chicago. The Association will ask the Legislature to pass, before adjournment, a bill providing that no person shall be permitted to practice veterinary medicine or surgery in Illinois without a diploma from some college duly authorized to graduate students, unless he is a recognized member of the State Veterinary Medical Association, or has passed a satisfactory examination before a board appointed for the purpose.—*Prairie Farmer*.

THE REVIVAL OF THE PORK PROBLEM IN THE *North German Gazette*, by attempts to show from statistics that American pork is sixty times more liable to produce trichinosis than German, may, says *The Sun*, give Minister Sargent something more to do. A short time since it was charged in the German newspapers that thirteen deaths had occurred in the garrison at Tilsit from eating American pork, and that many more of the troops were sick. Mr. Sargent caused the nearest consular officer to make an inquiry, and it was found that fourteen trivial cases of trichinosis had occurred, and that every one of the patients had

recovered. The statement that American pork is sixty times more trichinosed than German is about twenty times too strong. It is in fact unwarranted by any trustworthy statistics.—*Medical Record*.

MORE VETERINARIANS NEEDED.—In an address before the Kentucky Medical Society, at its recent session, the practice of veterinary surgery was commended to young men. The speaker estimated that the yearly loss arising from the want of sound advice and treatment—the horses of the country being valued at nearly eight hundred million dollars—amounts to \$15,000,000.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinary Journal, Veterinarian, Clinica Veterinaria, Presse Veterinaire, Revue Scientifique, Gazette Medicale, Revue Dosimetrique, Annales de Bruxelles, Revue d'Hygiene, Journal de Zoötechnie, Archives Veterinaires, Revue für Thierheilkunde und Thierzucht.

HOME.—Medical Record, Druggists' Circular, Rural New Yorker, American Agriculturist, Country Gentleman, Breeders' Gazette, Live Stock Journal, Spirit of the Times, Turf, Field and Farm.

JOURNALS.—Journal of Agriculture, Ohio Farmer, Home Farm, Medical Register, College and Clinical Record, Medical Herald, Cheyenne Gazette, The Planet.

COMMUNICATIONS.—W. R. Howe, A. A. Holcombe, W. Devoc, A. Zundel, F. E. Rice, W. L. James.

PAMPHLET.—Montreal Veterinary College Announcement.

AMERICAN VETERINARY REVIEW,

AUGUST, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 156)

CARTILAGINOUS QUITTOR—*Continued.*

VII.—*Symptoms.*—When the disease is recent and the quittor acute, and antiphlogistic treatment may be attempted and resolution looked for, baths and emollients are generally beneficial. A good blister has sometimes proved advantageous, and when it is used limited suppuration, with the formation of a simple slough, may take place.

If necrosis is well established, it is an indication of the necessity of a recourse to more energetic treatment, in which case several measures are recommended, including the actual and potential cautery and the removal of the cartilage.

In actual canterization the necrosed spot is destroyed by a cautery brought to a white heat, applied directly upon it, after it has been exposed by a free incision. It is a simple treatment, and one that has been successful in cases of posterior necrosis where much fibrous tissue was diseased, and principally in young and well-conditioned animals (Lafosse, Sr., Girard, Vatel, Mangin, Renault). Still, this treatment not only often fails, but may even

become a means of irritation of the fibro-cartilage, and cause an extension of the necrosis. (Hurtrel, D'Arboval, Lafosse.) In our day this treatment is almost entirely ignored by good practitioners, and the potential cautery more generally adopted.

This had already been employed by hippiatrics. Solleysel principally recommended the use of corrosive sublimate mixed with aloes; Girard, Barreyre and Bernard also mentioning it. English veterinarians recommend their use very strongly. (White, Blaine, Riding, etc.) These practitioners all used the solid caustic, either in the form of trochisc or in powder, and if they obtained good results it required a much longer time than that required in our day by the use of the liquid forms of caustic which are at our command. With the solid form the action was of limited extent, and scarcely more effective than that obtained by the actual cautery; moreover, they frequently injured the healthy structures by irritating them and increasing the inflammation, and thus resulting in serious complications.

As we have said, liquid caustics are largely used to arrest the spread of the caries; they modify the process of decomposition, dry up the suppuration and stimulate the tissues without injuring the healthy structures. This mode of treatment must be credited to Mariage, who in 1847 established the unfailing efficacy of repeated injections of Villate's solution; one of sulphate of copper and sulphate of zinc, 64 grammes of each in 1 liter of vinegar, and decomposed by 125 grammes of Goulard's extract. It is really simply a solution in vinegar of acetate of copper and zinc, holding sulphate of lead in suspension. Villate himself had already used his solution with success by injecting it in cartilaginous quittor as early as 1829, since which time Burgniet, Verrier, Sr., Collignon and others have recognized the benefit of liquid escharotics in the treatment of the same disease. Villate's Solution is not a specific, and cartilaginous quittor has been cured by the injection of tincture of sublimate (10, p. 100), with solution of nitrate of silver (Bernard), with the perchloride of iron, chloride of copper, sulphate of copper and zinc, nitrate of lead, more or less concentrated mineral acids, and especially the rabel water (Collignon).

It is difficult to say which is the more useful of these drugs and which has been most successful. Success has also been obtained with injections of tincture of iodine, phenic acid and even petroleum. It is less the nature of the drug that insures the effect than the mode of using it. We ought also to say that, advantageous as this mode of treatment is, it is not infallible, though Mariage and others so consider it. It is not to be preferred to the extirpation of the cartilage, an operation which proves successful when all other means have failed.

To obtain a cure by the use of liquid applications it is essential to make injections every day, and even several times daily. These are made with a syringe, carefully adapted in respect to size, with a small canula. The injection must be pushed well in, but must be allowed to escape freely after coming in contact with all the diseased surfaces which it is designed to modify. To effect this it becomes necessary, as the fistulas are sometimes very narrow, and even irregular, to enlarge them, or to make counter openings. Mariage had originally insisted that these precautions were essential to the success of the treatment. H. Bouley and Visenr also strongly insisted upon the same point, viz., that of enlarging the fistula in order that the liquid should not be allowed to remain at the bottom of the fistulous tracts, by which all possibility of the extension of the disease from that cause might be avoided. These enlargements of the fistulas, or counter openings, close, however, very rapidly; as a remedy to which, Hivernat has suggested the introduction into the tracts of little wedges of wood pointed like pencils, for the purpose of lacerating the walls of the fistula, followed by the insertion in them of small setons moistened with Villate's solution. Guerrapain introduced a fine mèche of oakum, a seton in the tract, by means of a curved needle. If the fistula runs downward its bottom is under the wall, and he thins this down and makes a counter opening through the hoof thus thinned. This seton prevents the closing of the counter openings, and enables the operator to push through the injection regularly.

Other precautions are also necessary. One, especially, is rest. The animal must not be put to work. Lafosse says that these

liquid caustics act with regularity and cure with certainty. A bar shoe, not pressing on the diseased quarter, is also useful. Emollient poultices are sometimes necessary, after the injection, to diminish the irritation. Mariage also recommends them. If the fistula extends under the coronary band, or the podophyllous tissue, it becomes necessary to thin, or to remove altogether, the hoof of the diseased quarter.

After fifteen days of this treatment, the exfoliation often takes place, and recovery follows. Often, however, twice this length of time is necessary. After the first eight days the pus becomes more abundant, white, and landable; the tumor softens and diminishes, as the pain subsides. Later, the injections penetrate with greater difficulty, which is a good sign. The injections constantly attack the germ of the disease and leave it without chance to re-form or to spread; the gangrenous structure which develops in the cartilage is changed into an inert substance; the pyogenic membrane of the fistulous tract is stimulated; the process of granulation becomes more rapid; the wound becomes more and more healthy, and the diseased process ceases. If, however, it continues, the wound changes its character; large granulations develop themselves, and on their center, the openings of the fistulous tracts, which open on the cartilage, make their appearance. At times the wound closes; but, after a short interval opens again, or another forms at another point. There is then a repetition of the same course of treatment by caustic applications,—but generally, this indicates a complication, and suggests the propriety of an operation. The injections are generally successful, however, and most certainly so if the caries occupies the posterior parts of the cartilage. They may even succeed in the anterior parts, when the animal is young and of good constitution. But if the cartilage has already become partly ossified, the caustic is irregular in its action, and the result becomes doubtful. If the caries is deep and extensive, and especially if the necrosis extends through and through to a point corresponding to the synovial capsule of the articulation of the last phalanx; or if the necrosis exists on the internal face of the cartilage, where it covers that structure, then the repeated injections of Villate's, or of any other

caustic, may be followed by serious complications. An old or complicated caries will offer an increased resistance to the treatment by liquid caustics, in proportion as there is more or less difficulty in bringing them in direct contact with the necrotic points.

The third method of treatment is that of the removal of the cartilage. This operation, first recommended by Lafosse, senior, in 1754, was often performed by his son, and may be considered one of the most valuable results of the application of anatomical knowledge to the practice of veterinary surgery. This operation was also performed by Bourgelat and his students, by Girard, Hurtrel Darboval, and was principally studied and described by Renault. In Germany, notwithstanding the writings of Langenbacher, Dieterichs, and Hertwig, it did not meet with approval, and English veterinaries seldom, if ever, resorted to it. At present, even in France, it is seldom performed, except in case of failure by the caustic injection treatment, and this is often the case where the disease is situated in the anterior part of the fibro-cartilage, where the cartilaginous tissue predominates, or where the vitality is diminished, and above all, where ossification has taken place. It is an operation of the greatest delicacy, and accompanied with great risks on account of the proximity of the joint of the foot, and it requires an experienced operator and thorough practitioner to justify a hope of successful results. It consists in the excision, by layers, of the diseased cartilage, and in avoiding injury to the coronary band and to the podophyllous tissue, which are essential elements of the organization of the foot. It is also essential to avoid injury of the lateral ligament of the foot joint, which is close to the cartilage, and above all, of the synovial capsule of the joint, which is directly covered by the cartilage. The partial or entire extirpation of the cartilage can be performed. In the first case, only a portion of the necrosed fibro-cartilage is removed. Vatel, Sanstas, Renault, Bell and Lafosse have reported many cases of recovery by this mode of operation; but, it is not likely to be thoroughly successful, unless in circumstances as favorable as those accompanying the treatment by liquid caustics. It is generally much better when

the operation is decided upon, to perform it by excising the entire structure, and removing all the carious elements. The partial removal is to-day entirely abandoned, and entire extirpation accepted as the true and only operative procedure. The best method of performing it is that recommended by Renault and adopted in our colleges. We shall make it the subject of description with all necessary details, and with various modifications as performed by other practitioners; we shall also offer some observations upon various other modes of performing the operation in question.

(To be continued.)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 162.)

Prognosis.

The prognosis must depend not only upon the locality or anatomical seat of the disease, but also upon the extent to which it has developed itself. When an important organ is involved, and that extensively, or when the disease is but slightly advanced but is beyond reach; then the prognosis must be unfavorable. When it is accessible, and has not caused serious alteration, and when it can be removed or palliated within a certain time, then it must be pronounced favorable. Sometimes spontaneous recovery takes place, probably owing to the fungus losing its vitality, through diminished nutritive supply from retraction of the connective tissue stroma, and its becoming encapsuled in lime salts.

Treatment.

The treatment of actinomykosis belongs exclusively to the domain of surgery, and its object must be the extirpation or destruction of the microphyte. This is only possible when it is acces-

*From *The Veterinary Journal*.

sible to the hand, surgical instruments, or destructive agents—as caustics. Tumors situated on the jaws or face can be removed by cutting instruments, but it must be for the veterinary surgeon to determine as to whether operation will be profitable, from a pecuniary point of view. It must be remembered that resection of the jaws, which is generally a desirable and successful operation in man, is not to be recommended in the case of animals, for obvious utilitarian reasons. If it is decided that treatment be resorted to in the case of these and other easily-accessible actinomykomatous tumors, they should be removed according to surgical principles, and the wounds dressed with agents which will be likely to destroy any spores of the fungus which may chance to remain; or the attempt may be made to destroy the fungus by injecting these agents in a fluid state into the centre of the mass. Johnes speaks favorably of the action of sulphate of copper in destroying the fungus.

With regard to the actinomykosis of the tongue, success in treatment must depend upon the condition of the organ, *i.e.*, the extent to which it is invaded by the fungus. When this is near the surface it is easily destroyed by caustics, as carbolic acid (1 to 25 of water), tinct. ferri perchlorid., or liq. ferri perchlorid, fort., diluted with only two parts of water. The latter agent has been very successfully employed by Mr. James, who states with regard to it, “Only at the commencement of treatment is it necessary to dress every day; after a week, once in two or three days may be sufficient, but I leave that to the discretion of the practitioner, who will be guided by the appearance of the tongue and the progress the case is making; also to further dilute the dressing if necessary. . . . I always order some extra nutritive food, and I find after two or three dressings there will be a great improvement in the animal’s feeding; the tongue will be hardened, and the abnormal sensitiveness destroyed.”* A cure cannot be effected in a very short space of time, and patience is necessary to carry out the treatment effectively. When the organ is extensively involved, and treatment is nevertheless de-

* *The Veterinary Journal*, Vol. xiv., p. 12.

terminated upon, it is advisable to make more or less deep incisions in the indurated portions, and apply the caustic agent to these, so as to reach the deeper-seated fungus nodules. Excision of a portion of the tongue may even be advantageously resorted to, if the animal is to be fed on soft food, with the intention of its being consigned to the butcher.

When the actinomycomata are situated in the mouth or pharynx, they may be removed by the knife, écraseur, or even the fingers alone, the gag being employed to protect the hand and render the operation easier. Meyer, a veterinary surgeon at Neuhaus, in Germany, has, in the course of twelve years' practice, operated in more than 300 cases of pharyngeal tumors, or so-called lymphomata. He only employed his hand, passing it into the pharynx, seizing the growth, and removing it by twisting, tearing and scraping with the finger nail. I am informed that Mr. Wyer, M.R.C.V.S., of Domington, Lincolnshire (where such tumors are frequent), has also been very successful in this operation. He had the animal thrown down, inserted a mouth dilator between the jaws, which were maintained as wide apart as possible; then, with a short-bladed knife he made a vertical incision through the soft palate, to allow more room for the introduction of his hand into the pharynx, in order to tear away the tumors. The hæmorrhage was never serious, and the only danger was the tumefaction which ensued in a few instances.

In some cases, either before or after the operation, tracheotomy may be necessary to ensure success.

The Sanitary Importance of Actinomykosis.

The sanitary importance of this disease is so far evident. It is proved that the microphyte which induces it, or which constitutes it, can be successfully transplanted from a diseased to a healthy animal, and produce all the serious and characteristic lesion which mark the natural malady. If artificial, or rather experimental, transmission can be easily and successfully accomplished, there can scarcely be any reason to deny the possibility of accidental transmission; and though at present there is no direct evidence of this having taken place, either in man or beast, yet

this absence of proof may be owing to our ignorance of the nature of the disease, and consequent inability to trace or ascribe its origin to infection.

Now that we are acquainted with its pathology, and especially its etiology, and are in a position to be able to diagnose it in man and animals, we shall doubtless rapidly acquire new facts with regard to it. In the meantime, it is well to bear in mind the important fact—for which we are once more entirely indebted to experimental pathology—that the spores of this fungus, alike destructive to man and beast, may invade the body by a trifling scratch or wound, and there set up such changes as to ultimately cause death. Many such cases may have entered our hospitals and come under the observation of the surgeons, without their true nature being suspected. For, as I have already said, no instance—so far as I am aware—has been recorded as occurring in man in this country, Germany alone furnishing all the cases hitherto recorded; and yet there is only too much evidence to show that it widely prevails among our cattle (probably also among our other domesticated animals), and therefore those who go about such diseased creatures must be exposed to accidental transplantation of the *actinomyces*.

ADDENDUM.

Since the foregoing paper was written, M. Kaufmann, assistant teacher of physiology in the Lyons Veterinary School, has published some investigations he has made with regard to the infectiveness of the fungus, *aspergillus glaucus*, and as the results of his researches have an important bearing on the subject of micro-pathology, and especially on this of actinomykosis, I think it will not be amiss to refer to them here.

The microbes and bacterides, it is now fully established, are not the only microscopic agents capable of exercising a pernicious influence on the health of animals and mankind, as other vegetable organisms, and particularly the spores of certain "moulds," possess the same property; and it was to more fully establish this point that Kaufmann undertook his task. In the note which embodies his remarks and conclusions, and which is given in the

Archives Vétérinaires for November 25th, 1882 (p. 861), he reviews the state of the question up to the moment when he began his experiments; pointing out that in 1869 Grohe and Block produced fatal infection in rabbits, by injecting into their veins the spores of two of the commonest moulds, the *pencilium glaucum* and *aspergillus glaucus*. These results, however, were doubted by Cohnheim and Grawitz, who vainly attempted to reproduce them in 1874-75. But at a later period, in 1880, the last of these experimentors succeeded in producing infection with cultivated spores adapted to an alkaline medium.

These experiments which Kaufmann undertook, under the direction of Chauveau, had reference to the *aspergillus glaucus*, and the results he obtained proved that the spores of this cryptogam are infective without any previous adaptation. The following is the *résumé* he gives of one of his experiments, those which were afterwards instituted in modifying the circumstances, having corroborated the conclusions arrived at from this one:—

“On May 12th, 1880, on damp bread, I sowed the spores of *aspergillus glaucus* procured from the surface of a dried solution of gum arabic. This cultivation, placed in a water-bath kept at a temperature of 35° Cent., furnished numerous spores in about forty-eight hours. In order to obtain spores in abundance, I made a new cultivation on bread reduced to broth, with an acid reaction, using for this purpose the spore obtained by the preceding cultivation. This second crop, like the first, furnished spores in abundance in about forty-eight hours. I left these cultivations in the bath until May 19th, and on the evening of that day I put a quantity of spores of the second generation in water enough to make it look slightly turbid. Into the jugular vein of a rabbit (No. 1) I injected one centiliter of this fluid; and into another rabbit (No. 2) two centiliters. During the night of the 23d-24th, rabbit No. 1 died; while rabbit No. 2 was very ill, turning its head towards the side and foaming at the mouth; it died during the night of the 24th-25th. At the autopsy there were found in both rabbits the typical lesions of infection by moulds, such as Grawitz had described. The kidneys were highly congested in places, and on their surface were a multitude of white nodular

points. On section from the periphery towards the hilum it was noted that each white point on the surface was prolonged towards the medullary surface by a white line. Examined microscopically, in all these nodules the mycelium was found to be felted and already undergoing destruction. In rabbit No. 1 the mycelium tubes were yet perfectly recognisable; they were felted and partitioned, and in every respect similar to those figured by Grawitz. In rabbit No. 2, the one that lived a day longer, the mycelia had almost completely disappeared. Some fragments were noticeable which were easily broken up.

"In the liver there were also numerous white points, which contained fragments of mycelia in process of destruction. The lungs showed a small number of white nodules, but no mycelium tubes could be discovered in them, only granules which were doubtless the product of disintegration of the mycelia under the influence of the inflammation its presence provoked in the lung tissue. Similar white points to these were also found beneath the pericardium and in the walls of the stomach.

"In these two rabbits, the spores of *aspergillus glaucus*, cultivated on bread which had an acid reaction, produced a mortal infection exactly similar to that which Grohe and Block obtained, and also like that induced by Grawitz, with their malignant varieties previously adapted to the character of the blood by gradual cultivations.

"The spores which I injected into the rabbits did not undergo any process of adaptation to enable them to live in the blood; nevertheless, they germinated and vegetated in the organism. Previous adaptation is therefore needless in order to render the spores of *aspergillus glaucus* infective."

Kaufmann alludes to the experimental results published by Koch and his assistants, Loeffler and Gaffky, and which are analogous to those obtained by himself. These German investigators believed they had discovered the cause of Grawitz's non-success. Finally, he arrives at the following conclusions:—

1. The *aspergillus glaucus* grown on bread may produce fatal infection in the rabbit, even in an extremely small dose, 1.10th of a milligramme. Subsequently it was found that 0.05 milligramme of spores was sufficient to kill large rabbits.

2. That its previous adaptation to a liquid and alkaline medium, and to a temperature of 39° Cent., is not requisite to confer infectious properties.

3. That if this adaptation exercises any influence, it can only be accessory and very slight.

4. That the spores exposed to the temperature of the air during nearly six months preserve all their infective activity.

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(To be continued.)

RHEUMATISM AND ACUTE INTESTINAL INDIGESTION.

By C. C. McLEAN, V.S.

On the morning of May 10th I was called to see a brown gelding used in a livery stable, which, on a previous day, had been driven in a cold rain. On arrival I found him in great distress. Temperature, 105²⁰; pulse, 87; respiration much worse than a horse would have in a *very bad* case of laminitis; he was almost unable to move; joints swollen; hot, and exceedingly painful; cracking noise on movement; bowels costive, and urine scanty and high colored.

Diagnosis.—Acute Rheumatism. *Treatment.*—Purgative.

Tr. Acon Rad. in. xx., every four hours. Salicylic Ac. ʒ ij., every three hours. Potassa Nit., freely in drinking water, and hot applications externally.

May 11th.—Some improvement; temperature, $103\frac{1}{2}^{\circ}$; pulse, 72, and some inclination to eat; bowels had not moved; urine high colored, but increased in quantity; but when tested by heat and nitric ac., I found enormous precipitate of albumen. At 9 P.M., of same day, was called in haste to see him again, as owner said he was bloated and dying. I found him in great pain, sweating, rolling and tumbling, and very tympanitic, and saw that I had a bad case of acute intestinal indigestion to deal with, and gave a drench, composed of eth. nitrosi, chl. hyd., sp. ammonia Aromaticus, but gave no relief, and repeated in half hour, and added sp. terebinth, and gave relief. And as there had been no action from purgative given the morning of the 10th, I gave a purge in solution. He became so tympanitic again that I had to resort to trocar and canula twice before he got permanent relief. During this attack of indigestion the stiffness and soreness of rheumatism had entirely disappeared, but as soon as permanent relief was given, and he became cool, the former symptoms returned; during the time he was so tympanitic, there was *terrible* dyspnœa, as he was badly affected with broken wind.

May 12th.—Bowels move freely; less cracking of joints on movement, and swellings have shifted some, but are not so painful. Temperature, 101° ; pulse, 60; urine improved in color, and less albumen when tested.

May 13th.—Temperature, $98\frac{1}{2}^{\circ}$; pulse, 43; bowels in good condition; no albuminous precipitate in urine; he is able to move without showing pain; extremities cool, and swelling disappears.

May 14th.—Pulse and temperature about normal; appetite good; bowels and urine normal; case discharged. This case is rather interesting to me on account of seriousness, and because he would have succumbed beyond a doubt without the aid of trocar and canula. I have since discovered that the cause of the indigestion was a change in food from oats to chop. I think many such cases are lost by not being punctured in time. Some prac-

tioners do not resort to puncturing until the vital powers are so exhausted that recovery is nearly impossible. I do not believe in indiscriminate puncturing, but advocate puncturing as soon as antacids, stimulants, antispasmodics, etc., have had a fair trial.

SUPPURATIVE PAROTIDITIS.

BY THE SAME.

The subject of this rather uncommon affection was a Jersey bull calf, aged three months. His dam is the celebrated Jersey cow Eurotas. Said calf cost his present owners, Messrs. Miller and Sibley, the enormous sum of \$12,500. When I was called to see him, found considerable febrile disturbance, complete anorexia, painful swelling of right parotid.

Diagnosis.—Parotiditis.

Treatment.—Saline laxatives and hot water applications to parotid region, followed by cataplasma lini. Continued poultice for several days, and gave small doses of febrifuge medicine. Swelling begins to disappear, calf eats and appears to be doing nicely. Calf is exposed to cold through negligence of attendant; gland swells very badly—about three times former swelling. Poultice is again applied and laxative given, and soft food. Swelling begins to point, and as soon as pus approaches surface is lanced, and about two ounces of landable pus escapes. Treat opening with carbolic wash. There is very slight discharge of saliva through opening, but it ceases in 48 hours. Opening closes, and slight induration remains, which subsides on application of tinct. iod.

AN INTERESTING POST MORTEM.

BY V. L. JAMES, V.S.

The history of the mare from which those tumors I sent you the other day were taken, is as follows: Four years ago she had a tumor form on the end of her tail, which ulcerated and became

very offensive, and the owner supposing it to be a wart, had the tail amputated. Afterwards other tumors formed along the under surface of the tail, and one in the muscle on each side of the anus which, at the time of her death, had the appearance externally of melanotic tumors. She has been used on a farm and kept in good condition and done her share of the work up to June 5th, all the owner noticing amiss being a cough and slightly labored breathing, he supposing her to be coming down with broken wind. On the 5th he drove her a short distance, single, when she appeared dull and wanted to stop often. On arriving home she was put in the barn and fed as usual, and on going there a short time afterward she was found down, resting her nose on the floor and in great distress. A neighbor chancing to be going by who doctors horses occasionally, he was called in and prescribed something to quiet her pain, and the next day (Wednesday, 6th), I was sent for to see her. On my arrival I found her standing. She had not been down since the night previous. Eyes amaurotic; breathing labored; pulse 90; temp. 105° ; no murmur over lower half of lungs, and dull sound on percussion; heart sounds as though beating through water; had eaten nothing since first taken. On the 7th I visited her again, found pulse 80; temp. 104° ; on the 9th, being in the neighborhood, I called again, found pulse 54; temp. $102\frac{1}{2}^{\circ}$; seemed brighter; began to eat some; had slight dropsical swelling on under surface of abdomen and chest; this was about noon; in the evening they went to the barn about nine o'clock and found her down, and at ten o'clock same evening she died. Next morning I held *post mortem*, found the abdominal cavity filled with bloody serum. On removal of spleen, found it to be divided into five large tumors, round one way and oval the other. Noticing that they were about of a size I weighed one, which weighed seven pounds; there were a few small ones, one of which I sent you; that was the largest of the small ones. The whole spleen weighed 38 pounds. There was a rent across one of the large ones extending in to its center, and its surface was covered with coagulated blood. The right lobe of the liver was filled with these tumors, and the whole gland weighed $24\frac{1}{2}$ pounds. The ovaries were both affected, and a

few very small white tumors scattered about on the peritoneum. On opening the chest found it and also the heart sac partly filled with bloody serum. The lower half of the lungs were entirely composed of tumors and cysts, one of which I also sent you (that was a medium sized one, some being three or four times as large, others smaller). Some of these were filled with straw-colored serum and jelly-like substance of same color; others with bloody serum and sac lined with coagulated blood. Some were solid, but easily broken down and of brownish color, the whole mass weighing 56 pounds. There were also in this cavity small tumors on pleura costalis and diaphragm. All of the tumors situated on a serous membrane were white internally and externally and solid.

There was a small quantity of pus in pelvis of right kidney. The tumors on under surface of the tail before death (or some of them) felt as though filled with pus, but on opening one of them but a small quantity would exude. As I wrote you on my postal card, the mare was a dark bay, with black points; thirteen years old and about 15 hands high. Having a long distance to go to see another patient, I did not stop to examine any other parts.

[The tumors are now under preparation for microscopical examination—their nature will be made known as soon as we have received it.—EDIT.]

UNUSUALLY HIGH TEMPERATURE IN A CASE OF PNEUMONIA.

By WM. R. HOWE, V.S.

Pneumonia, or inflammation of the lungs, is a febrile condition from which no animal is exempt. Although any disease affecting such important organs as the lungs is dangerous, I do not think it is often necessarily fatal, if attended to with proper care and treatment.

Williams says that in pneumonia the temperature may rise to 103° , 105° , or even to 106° . In my own experience, until the present case, the greatest rise of temperature in the disease has been to $105\frac{1}{4}^{\circ}$, 106° being the highest record that I can find in simple pneumonia. I thought this case might be of interest to the readers of the REVIEW.

On May 9th, at about 6 P. M., I was called to see a gray gelding five years old. Found pulse 71, respiration 24, temperature $106\frac{1}{2}^{\circ}$. Limbs and ears cold, bowels had just moved and were about normal.

On auscultation I could hear but slight tubular breathing in left lung, the right lung being natural. The horse was in very little pain. Diagnosis: Pneumonia.

May 10th,	8 A. M.,	Pulse 68,	Resp. 22,	Temp. $106\frac{7}{8}^{\circ}$
"	" 7 P. M.,	" 68,	" 22,	" $106\frac{3}{8}^{\circ}$
" 11th,	8 A. M.,	" 68,	" 22,	" 106°
"	" 7 P. M.,	" 68,	" 22,	" 106°
" 12th,	8 A. M.,	" 65,	" 21,	" $105\frac{1}{2}^{\circ}$
"	" 7 P. M.,	" 65,	" 21,	" $105\frac{1}{2}^{\circ}$
" 13th,	8 A. M.,	" 63,	" 21,	" $105\frac{3}{8}^{\circ}$
"	" 7 P. M.,	" 63,	" 21,	" $105\frac{3}{8}^{\circ}$
" 14th,	8 A. M.,	" 63,	" 21,	" 105°
"	" 7 P. M.,	" 63,	" 21,	" $105\frac{7}{8}^{\circ}$
" 15th,	8 A. M.,	" 68,	" 21,	" $105\frac{3}{4}^{\circ}$

On auscultation could now hear loud crepitation with slight gurgling sound in all but lower part of left lung.

May 16th,	8 A. M.,	Pulse 65,	Resp. 22,	Temp. $105\frac{1}{4}^{\circ}$
"	" 7 P. M.,	" 65,	" 22,	" $105\frac{1}{4}^{\circ}$
" 18th,	8 A. M.,	" 57,	" 20,	" $103\frac{3}{4}^{\circ}$

From this date I only saw the horse once a day. He continued to improve slowly, temperature falling gradually to $101\frac{1}{2}^{\circ}$ on May 22d.

The extremities were not cold after the first day; bowels and kidneys, although slightly dormant, never were badly deranged.

The horse never lost his appetite completely; ate a little grass and bran mash at every meal.

Treatment consisted of the administration of quina sulph. 3 ij. in alcohol every 6 hours, and potassa nitrate in drinking water. Kept up the quinia every 6 hours until the temperature began to fall, then only gave it twice a day in same dose, continuing alcohol 4 times a day.

I have been induced to write up this case, not on account of the treatment, or because of the final success, but on account of the extreme high temperature with moderation of other symptoms, and the persistency of high temperature in spite of treatment which certainly had a strong tendency to lower it.

EDITORIAL.

VETERINARY CONVENTIONS.

In our last issue we called the attention of the profession to a movement which had been inaugurated in the west, which we thought would have the effect, if followed up throughout the country, of greatly promoting the advancement of veterinary science in the United States. The movement referred to was the holding of the Veterinary Convention at Chicago, the formation of a State Veterinary Association, and the proposal to hold similar meetings in Wisconsin, Iowa, Michigan, Ohio, and probably in other western States.

This movement ought, in our opinion, to be imitated by the eastern States, and we have been gratified by the receipt of a number of letters which seem to indicate that during the next few months similar conventions may be expected in nearly every State of the Union.

We do not ignore the fact that certain difficulties must be encountered in conducting these conventions efficiently and harmoniously, but if Illinois has encountered no insuperable obstacles in the experiment, we see no reason why failure should be apprehended in other places. There are, doubtless, organized societies in other States upon which it would seem to be incumbent to take the initiative step in calling these conventions.

The successful accomplishment of the suggestion in question would unite the members of the veterinary profession into a strong and influential body, which would occupy a place in public estimation which, in their present divided and obscure position, they can never hope to maintain,

The REVIEW will be glad to give publicity to the views of any writers who may see fit to communicate their thoughts upon this subject though our columns.

CONTAGIOUS DISEASES AMONGST OUR DOMESTIC ANIMALS.

Recent outbreaks of contagious pleuro-pneumonia in various parts of some of the eastern States, principally in New York, with the official acknowledgment of ignorance of power to dispose of diseased or dead animals, or of legislative regulations, by the Sanitary Veterinary Inspector, are conditions which veterinarians will seriously regret, and which we hope will make evident to the public the great error committed by our State authorities when the work carried on by Gen. Patrick's commission was cut short some years ago.

With pleuro-pneumonia constantly threatening our extensive cattle population in the west, with anthrax devastating more or less every year some of our cattle ranges, with hog-cholera killing our swine, with glanders and farcy breaking out at various times, is it surprising that foreign countries should find our preventive laws defective and the sanitary condition of our cattle not such as to afford reasonable security against foot and mouth disease, even when the true extent of its existence in the United States—if it exists—is so little defined that it can be denied.

In view of the existence of such restraining measures as have been taken by foreign countries, and the possibility of others which would interfere still more with our exports of animals, it is evident that the best remedy is the increase of power at the hands of the Treasury Cattle Commission, the appointment of State Veterinarians all over the country, and the formation of a Veterinary Sanitary Bureau; all of which will not only look after the sanitary condition of our domestic animals, but also prevent by proper legislation the unreasonable opposition that may be met with in the performance of professional duties, as has recently been the case in some instances, where animals affected with contagious diseases were not allowed to be destroyed, notwithstanding the existence of the disease was fully established, without the interference of legal official authorities.

GLANDERS IN ILLINOIS.

We have received from Dr. Paaren, State Veterinarian, the reports of the proceedings of the Illinois State Board of Health, which contain the history of the outbreak of glanders with which he had to deal, not without difficulty, in June last; and also the various acts amending that already existing, together with the official opinion of the Attorney General as to the powers and duties of the State Veterinarian. We regret that these important documents did not reach us in time to allow an earlier publication, but they will be presented to our readers in our next issue.

PATHOLOGICAL PHYSIOLOGY.

UPON THE ATTENUATION OF THE BACTERIDIE OF ANTHRAX
AND OF ITS GERMS UNDER THE INFLUENCE OF ANTISEPTIC
SUBSTANCES.

BY M. CHAMBERLAND & ROUX.

We have established the fact—in a note presented to the Academy—that the bacteridie of anthrax is modified in its virulency when placed in a medium containing an antiseptic substance, and especially phenic acid, or bichromate of potash. We have shown that the threads of bacteridie which have been submitted to the action of these agents reproduce themselves when in proper mixtures, with its diminished virulency, and that it gives their germs, which also perpetuate its new qualities.

In another series of experiments, we have submitted the bacteridie thread to the action of the chemical agent in a liquid where its reproduction was not possible; we have brought the fully formed bacteridie under the action of an antiseptic solution in pure water, from which it could not derive any nutritive element.

The bacteridie threads of a drop of virulent anthrax blood, placed in phenic water of 1-600, soon die. We have seen, however, that the bacteridie lives and grows for months in a nutritive bouillon containing as much as 1-600 of phenic acid. In a phenic

solution of 1-900 the bacteridie threads remain alive for quite a long time, as proved by the cultures which can be made of them, even after the expiration of several months. During the entire duration of the experiment they give no germs, and the virulency continues to diminish. For instance, the culture of thready bacteridies, which have remained for a month in contact with a phenic solution of 1-900, kills rabbits and guinea pigs. A culture of three months does not kill rabbits. In these cases the loss of the virulency is less rapid than in the case where the bacteridies are in presence of the antiseptic. It is only a short time before the death of the filaments that this diminution of virulency for the rabbits can be observed.

The condition essential to reduce the virulency of the bacteridie of anthrax, either by the method of cultures at 42—43°, or by that which uses the antiseptics, is the absence of spores in the threads submitted to the continued action of air, of heat, or of various other chemical agents. The spore is the form of resistance of the bacteridie; it, so to speak, removes it from the action of the surrounding medium, and preserves the properties of the thread from which it comes. Notwithstanding this resistance to the external agents, the germ of bacteridie can be modified and reduced in its virulency, as the thread itself.

Well-formed spores of bacteridie, about fifteen days old, are exposed to the contact of sulphuric acid at two per cent., and to the temperature of 35° in closed tubes, being frequently shaken to be sure of the contact of air with the spores. Every second day a small quantity of these spores are placed in a bouillon of veal, slightly alkaline. The cultures thus obtained, in the first days, kill rabbits and guinea pigs. The culture of the eighth or tenth day kills the guinea pigs, but remains harmless to the rabbits; that of the fourteenth day remains active only in a few of the pigs inoculated. The bacteridies thus obtained produce numerous germs rapidly, and preserve their reduced virulency in the successive cultures.

But it is remarkable that the cultures formed from the spores treated by sulphuric acid, and which have lost some of their virulency for rabbits, has preserved it for sheep, and kills them in

the proportion of seven out of ten. This fact, with others that we have already published, show that each species of animal has a receptivity of its own for each breed of bacteridies, which can be created by artificial cultures.

The diminution of the virulency of the spores of bacteridie, and their death under the action of diluted sulphuric acid, take place so much more rapidly when the temperature is higher and the acid more concentrated, and so much slower when the temperature is low and the acid solution more diluted—*Academie des Sciences*.

REPORTS OF CASES.

(From the Hospital Department of the American Veterinary College.)

RAPID AMPUTATION OF AN EXTRA SCROTAL CHAMPIGNON BY MEANS OF THE ELASTIC LIGATURE.

By W. D. CRITCHERSON, D.V.S., House Surgeon.

The subject upon which this operation was performed was a dark brown gelding, seven years of age, and used for driving purposes. According to the history he has had a sore on his scrotum which had been discharging for the past three months.

At the time of admission to the hospital the animal was in the following condition: External appearance very good; body rather fleshy; in good spirits; in fact all the functions seem to be normal. There is neither lameness or stiffness shown in action.

The scrotal region is considerably swollen, hard, painless on manipulation, and the seat of several fistulous openings, varying in depth, which run into the enlargement.

Upon the center of the left side there is an extra scrotal tumor, having a circumference of about thirteen inches, and a base attached by a peduncle to the scrotum, which is about six inches in diameter. This abnormal growth is round, smooth, and bleeding here and there.

After having been prepared, and a dose of chloral administered at two o'clock P.M. on the 3d of July, he was cast and secured.

When placed upon his back a more thorough and careful examination of the part was made. It was then found that not only the left but the right testicular sac was extensively diseased. The right has four large fistulas running into the mass of the enlargement.

The left has also several, but one principal one situated in front of the mass protruding from the scrotum. Rectal examination had also demonstrated that the blood vessels of the right cord were large and abnormally distended. In the face of such conditions the dangers of the operation were considered of such a nature, and the prospects of a radical recovery so slight, that it was decided not to perform the operation generally indicated in cases of champignon, but merely to remove the external tumor.

Not thoroughly surgical as this decision may be at first thought, it was undoubtedly the safest method by which to place the animal in condition to perform his work, which was all the owner desired, and which the animal had been able to do up to the day he was brought to the hospital for treatment. But the size of the tumor was such that it began to attract attention, and the stench which was emitted made it anything but a pleasure to drive him.

A strong elastic ligature was applied around the base of the external tumor, making only three turns of the ligature, well stretched, so as to enable it to cut its way more readily through the tissues.

The animal made only slight and short struggles during the operation, and upon the removal of the hobbles he sprang lightly upon his feet, showing not the least effect from the action of the chloral. During the afternoon he manifested slight colicky pains. Villate's solution was injected into the various fistulæ.

The next day, July 4th, the tumor is of a dark purple color, cold to the touch and of an offensive odor; pulse and temperature about normal. There is slight anorexia. On the morning of the 5th, about 40 hours after the operation, it is found that the tumor has been removed, and that the ligature remains attached by a small thread of modified tissue to the centre of the wound. The wound was now dressed with iodoform and charcoal powder.

In about 36 hours the elastic sloughed away, and after the opening of two small abscesses which had formed, one on each side of the scrotum, the animal was allowed to return home, in a fair way to resume his work in a short time.

It is to be feared, however, that there is but a temporary relief afforded, and that the protruding growth will sooner or later make its appearance anew, as it is doubtful that the granulations can be kept under control.

COMMUNITIVE FRACTURE OF RADIUS.

On Sunday evening, May 27th, about 5 P. M., I was called to see an animal which I was told had received a kick on being backed out from his stall, by the horse next to him.

On entering the stable I noticed a large bay gelding standing in the centre of the floor, his near fore leg slightly advanced and raised from the floor, with the lower portion of the limb hanging pendulous.

There was a slight amount of swelling. Upon examination I found that there was an oblique fracture of the radius and ulna. The injury had been received on the inside of the limb at about the lower third of the radius. There was a slight abrasion at the point indicated.

On manipulation distinct crepitation could be both heard and felt.

A fragment of the fractured radius on the internal border was protruding about one-half inch from the body of the bone, threatening to cut its way through the skin covering the parts. As the horse was a valuable one and the owner at the time in Europe, I sent for Dr. L., that he might see the case. On his arrival, after completing his examination, he applied temporary splints and a bandage extending from the foot up to the elbow, in order to control the swelling, which was rapidly increasing, and ordered the animal to be put in slings and the person in charge notified, which was done, and in the morning came the order to destroy him. The following are the lesions which were found upon post mortem examination :

At the lower third on the internal border and posterior face of the radius, there was crushing of the bone and loss of substance, indicating the point at which the blow had been received. It seemed to indicate that the toe calk of the shoe alone had touched the limb, and all the force of the blow was concentrated at that point. From this point extending upward and outward, the ulna included, there was a complete, oblique and comminutive fracture of the entire body of the bone.

About the middle of anterior face of radius, below the fracture, started a fissure which extended to the beginning of the median groove of the inferior extremity of the bone, through which the anterior extensor of the metacarpus passes. From this point it extended squarely across to the internal border, then obliquely upward along the posterior face of the bone to the lowest point of the fracture, forming an irregular quadrilateral section, which was itself divided into two pieces for nearly its entire length. The upper edges were worn perfectly smooth, being kept in contact with the bone above by the contraction of the muscles. The posterior face of the inferior fragment of the bone presented two fissures, one starting from the limit of the fracture and external border of radius, the other from the internal border, and both terminating at the tubercles on posterior face of radius.

EXTRACTS FROM FOREIGN JOURNALS.

DENTAL CYST ON THE RIGHT TEMPORAL REGION IN A FOUR-YEAR-OLD MARE.

BY MR. CH. MOROT.

A four-year-old mare had a suppurating fistula on the right temporal region, near the base of the ear. From the time she was two months old she had a purulent discharge at the bottom of the right concha. A counter opening had been made to allow the wound of the ear to close up, but it remained open, discharging through the fistulous opening. A year after, another veterinarian injected Villate's solution without better results. The animal, when visited, had on the right temporal region a fistulous opening, from which oozed a white-yellowish fluid, thick and

offensive. A probe pushed in the tract reached down about an inch, and was stopped by a hard, rough, immovable body. There seemed to be no inflammatory condition in the part. The right temple was larger than the left.

A diagnosis of dental cyst was made with a doubtful prognosis. Operated with difficulty, the tumor, which proved to be a molar, imperfectly and irregularly developed, was removed, after being dislocated from its surroundings. The extraction was accompanied by that of two plates of bony pieces, probably portions of the external layer of the squamous portion of the temporal bones. The wound was dressed with carbolized balls of oakum for five days, and on the sixth day an unsuccessful attempt was made to remove what seemed to be another molar protruding in the bottom of the cavity left by the first tooth. For a few days following the animal seemed to be doing well, but twenty-one days from the first operation she seemed to have some difficulty in eating. She has had paralysis of the muscles of the right side of the face. This was soon complicated by an extension of the nervous trouble, which manifested itself by a complete hemiplegia of the right side. This condition assumed a fatal aspect a few days after, in symptoms of total hemiplegia of the left side, and the animal was destroyed.

At the post-mortem examination of the head, it was found that the fistula extended down to the superior extremity of the molar left at the bottom of the wound. A section of the head showed a convex projection towards the cavity of the brain, pressing upon the meninges and the corresponding brain substance, where a depression was found. This projection was formed by an abnormal molar, imbedded between the two layers of the squamous temporal bone. The number of molars in the mouth was normal—twelve in each jaw.—*Recueil de Medecine Veterinaire*.

TUMOR OF THE BRAIN IN A STALLION.

By M. CHUOHU.

A stallion, six years old, was found one evening in his stall, with symptoms of vertigo, which subsided, to reappear after one

day of work, when he again presented the same symptoms. No treatment was attempted, beyond taking precautions to prevent his hurting himself against the wall and sides of his stall. A few days later, a sudden change occurred; he stopped pushing against the wall, but showed the most marked symptoms of immobility. By a long rest of three weeks he seemed to improve sufficiently to be able to resume light work, but the day following the symptoms reappeared, followed by those of immobility. This condition continued until the animal was destroyed. At the post-mortem, two tumors of the choroid plexuses were found, of the size of a flattened walnut, one in each ventricle. There seemed to be no atrophy of the optic layers, or of the corpora striata, only a small quantity of fluid of a citrine color. These tumors were formed of crystals of cholesterine, with an abundant proliferation of the cellular and vascular elements.—*Ibid.*

DYSTOKIA—CALF WITH TWO HEADS.

BY M. MARLOT, JR.

This is the case of a primipara cow which had for several hours violent pains without being able to deliver. On examination, it was found that the foetus seemed to be dead, and has his two hind legs protruding outwards. These being secured with ropes, strong traction was made upon them, but the delivery was still prevented. Embryotomy was performed, all the internal viscera removed, and the transversal section of the body was made. An attempt to change the position of the foetus gave to the hand the feeling of one head, and on the opposite side of a pair of ears belonging to a second. The remains of the trunk being secured with ropes, and stronger tractions put upon them, the two heads, which are connected in T form at the extremity of the neck—which is represented by the long branch of the T—approached closer to each other, and resumed their horizontal position, when the mass was extracted from the vaginal canal. Both are perfectly formed, of equal size, the same color, and perfectly alike. There was but one vertebral column, and only one spinal marrow,

bifurcated at the level of the third cervical vertebræ. Each head has its own atlas and axis, each axis being articulated with the third cervical vertebræ. There were two œsophaguses united into one single canal at the entrance of the chest, and also two tracheas, not united. The nerves, the jugular, and the carotids were also double. The cow, though very sick after her delivery, made a rapid recovery.—*Ibid.*

A TRANSVERSAL PRESENTATION.

BY M. BAULET-JOSSE.

A mare presented all the symptoms of a difficult labor. By exploration, while standing up, the author observed that the neck was widely dilated, and the hand pushed into the matrix feels the back of a foetus, which seems very large. Another exploration in the decubital position reveals the same condition. Failing to change the presentation and to take hold of any part of the foetus to change its position, the mare was destroyed. At the post mortem, made the next day, it was found that the fore-legs, the head and the neck were engaged in the right half of the uterus, and the hind legs in the left. The long axis of the foetus was perpendicular to that of the mare.

The conclusions of the author are that :

First. Presentations by the back alone, with the legs forward, are seldom seen, but are incurable.

Second. Presentations by the four legs are quite frequent, but generally followed by recovery.—*Ibid.*

A CASE OF OSSIFICATION OF THE TRACHEA FOLLOWING. TRACHEOTOMY.

BY M. BENJAMIN.

The animal that died from this lesion was a Percheron stallion, six years old. Affected with an acute laryngitis, he had been tracheotomized. Relieved by the operation, he made a good recovery, the tube remaining in the trachea but a few days.

When he resumed his work, he roared considerably. Some time later, the author saw him and observed that the region where the operation had been performed was considerably swollen. The swelling resisting the application of several blisters to a great extent, the animal was returned to his work and with this the roaring returned and increased. Allowed to rest, and severe counter irritation being applied to the swelling, he first seemed to improve, but a few days later, he was taken suddenly with a choking spell, and though an attempt was made to relieve him by tracheotomy, he died in a few minutes. At the post mortem, the trachea was considerably reduced at the point where the tumor existed, and its anterior face was transformed into a large, hard, partly ossified mass. At the posterior face of this was an abscess containing about two deciliters of white, creamy pus. The mucous surface of the trachea presented five or six polypous growths. That of the pharynx and of the larynx were normal.—*Ibid.*

A COLT WITH THREE LEGS.

By M. CAGNY.

The author reports the following curious case of simple thoracic ectromelia: A colt was born with three legs, the right anterior one being almost entirely missing. The shoulder was well formed, but below the scapulo-humeral joint there was a bony stump resting alongside the ribs, which seems to take the place of the superior half of the body of the humerus. The skin is perfectly intact, but at the point where the humerus terminates, a line exists which can be compared to a cicatrix, covered with hairs running crosswise and straight. The colt was strong and vigorous, thirty-three days old. He stands up part of the day, walks in a jumping fashion, and canters as fast as a colt of his age. He jumps small pools of water. When he is in action or at rest, the right shoulder executes the motion which would carry the missing leg forward. The left leg is very strong, and does not seem to suffer from the greater amount of weight it has to carry.—*Ibid.*

SOCIETY MEETINGS.

MANITOBA VETERINARY ASSOCIATION.

The regular general meeting of the Manitoba Veterinary Association was held at the Grand Union Hotel, on Friday, June 28th. The members present were, C. Taylor, W. A. Dunbar, C. Little, J. Loughmen, D. McFadden, Wm. McEachran, M.D., F. W. Lipsett, D. Scoullaw, M. Young, F. Torrence and W. J. Hinman. The minutes of the previous meetings were read and passed. After general business, the following officers were elected for the ensuing year, viz: Charles Little, President; D. McFadden, Vice-President; W. J. Hinman, Secretary Treasurer—with Messrs. McEachran and Loughman members of the Council. A discussion then followed in reference to the bill as passed by the Local Legislature, when the following resolution was drafted by a committee consisting of Messrs. McEachran, Torrence and Young:

Resolved, That this Association, considering the benefits it has conferred on the Province and the assistance it has rendered to the Department of Agriculture since its incorporation, regrets the recent action of the Local Government in limiting the usefulness of the Association by repealing some of the most important clauses in the act respecting veterinary surgeons, and that while the Association commends the act as it respects the suppression of contagious diseases of animals, it cannot but express its disapproval of the action taken, more especially as the Association was not allowed an opportunity of being heard on a matter which concerned its being.

This resolution being unanimously carried, the Secretary was instructed to send the same to the press for publication.

F.W. Lipsett, the retiring President, was then elected Honorary President of the Association. An adjournment was had until evening, when some very interesting and instructive papers were read pertaining to the veterinary act. Mr. Hinman informed the Association that he had resigned the Government Inspectionship for the Province. The meeting adjourned until October 1st, to be held in Portage la Prairie.

The necessity for the inspection of the abattoirs and meat

was the subject of an able and interesting essay, delivered by Dr. McEachran, who said :

“The importance of this subject in a young country like Manitoba determined me to bring it to your notice, and through you to the people at large. The practice of killing cattle in all parts of a thickly-settled community is, I think you will all agree with me, from a sanitary point of view a most pernicious one. They are often situated in the most unhealthy and over-crowded localities and kept in the filthiest condition, and they, especially in hot weather, pollute the atmosphere with most unsavory odors. As a rule, they are not only utterly unsuitable for the purpose to which they are devoted, but are often places where every kind of fraud is perpetrated with regard to diseased or objectionable flesh, and where the most horrible cruelty may be inflicted on the creatures driven there for slaughter.

“In making these remarks I speak of what has been abundantly proven in the cities of the east and of Europe. So far as Winnipeg is concerned I cannot speak. These facts have led the authorities in the majority of cities in Europe and the eastern States, and I am glad to say, in one city at least of the Dominion (Montreal), to institute public abattoirs in suitable localities, where not only would the sanitary condition of the neighborhood be uninfluenced, but a guarantee would be afforded that the animals were in a healthy state and not subjected to ill-treatment before being killed.

“Thus far I am pleased to state that the corporation of the city of Winnipeg have lately advanced and are now building proper buildings for the establishment of a public abattoir, and I hope to hear of the establishment of similar institutions in all fast growing centres of population in Manitoba and the northwest.

“But I think a step further is absolutely necessary in the interests of the public, and in this we are or should be all interested. I refer to the inspection of cattle by a competent veterinarian, and I think it is the duty of this Association to urge upon the corporation the appointment of some competent veterinary surgeon who shall act as inspector in the abattoir, and who from his knowledge can certify to the condition of the animals both

before and after slaughter, and see that they suffer no neglect or cruelty at the hands of the butchers. It will be profitable, I think, to consider for a few moments causes which give rise to the necessity for inspection of meat. The inspection of flesh after the carcass has been cut up is not always satisfactory, for various reasons, among which may be mentioned the fact that an animal may have died suddenly or a natural death, and while suffering from some disease, and the blood having been drawn from her and the organ or organs affected removed, thereby rendering the detection of the diseased condition difficult, although from the presence of infection or a febrile condition the meat might not be fit for human food. Hence the necessity for examining it while the carcass is intact or in the process of dressing, and also before being killed. Healthy meat is firm, elastic, covered with fat of a good consistency and more or less marbled from its presence when cut across. It cuts well, has a uniform bright red color, and the interstitial connective tissue is rather dry than moist. When newly cut there exudes from it, especially on slight pressure, a highly colored, slightly acid juice, having an agreeable odor; by immersing such meat in boiling water it increases in bulk. Diseased meat may possess some of these properties, yet is always deficient in others. If the peritoneum is intact the presence of tuberculosis, anthrax, peritonitis, etc., may be detected, the condition of the kidneys, lymphatic glands, spinal marrow, veins and other organs may betray the marks of diseases of various kinds.

“What would more particularly have to be looked for in inspecting meat in an abattoir has been stated to be ‘inflammation of various organs, cancerous disease, purulent infection, putrid decomposition, suppression of urine, jaundice, dropsy, rot (due to flukes), ovine bronchitis, diarrhoea and dysentery. Wasting diseases and various local diseases, besides these the various contagious diseases may be mentioned. The presence of *trichinæ spiralis* and the larva of the various tape worms requires more especially to be mentioned, as none but a competent man can undertake to search for and determine their presence.

“It is not my intention to enter into a description of the vari-

ous means of detecting the diseases and parasites mentioned at this time. At a future meeting I may dwell at more length on the subject. Suffice it to say in conclusion that the simple fact that these diseases and parasites exist, and that through ignorance or worse, the flesh of such animals (which, to say the best, is most innutritious) may be disseminated among the people and consumed, is quite sufficient to warrant the authorities of this and every city and town in the Province erecting abattoirs and appointing a properly qualified veterinary inspector to look after the health of the people by preventing the consumption of meat which is manifestly unfit for human food."

CORRESPONDENCE.

CRITICISMS FROM T. KENNEDY, V.S., M.R.C.V.S.L.

152 3D AVENUE, PITTSBURG, Pa., June 30, 1883.

Editor of Veterinary Review:

DEAR SIR—Since my arrival in this country from England, some two months ago, I have read with much pleasure, several numbers of the VETERINARY REVIEW. Under the heading Anthrax in Natal, by Mr. Wiltshire (August and September numbers, 1882), the writer describes a case of it in the horse, and which we call purpura hæmorrhagica. Purpura hæmorrhagica is a sequel to exhaustive diseases, and especially those of the chest, but this disease arises from other causes.

I have seen it come on in this country after a slight attack of pneumonia, when the animal was well nourished and had good ventilation, as well as every other comfort. I would venture to say the case mentioned by Mr. Wiltshire was at first a case of pneumonia, bronchitis, or pleuro-pneumonia, which was neglected by its owner and ran on to purpura hæmorrhagica, as I have failed to notice those symptoms mentioned, save in chest complications.

The discharge from the nostrils, the quick pulse and breathing, with symptoms of colic, all point to chest complication, as very often we get them with attacks of pneumonia, not to speak

of diseases with more pain, such as pleuro-pneumonia. My experience of purpura hæmorrhagica with the abrupt termination of the swellings, petechial spots on the schneiderian membrane, as well as on other membranes, we get a slow, oppressed and double pulse, sometimes of an intermitting character, and only felt in the carotids, whilst the breathing is scarcely disturbed, unless when swellings run on to the throat :

NAVICULAR DISEASE.

By MR. A. ZUNDEL. (February No.)

Navicular disease, till of late, seemed a mysterious one to the veterinary surgeon.

I am sorry I cannot agree with Mr. Zundel as to the origin of this disease, when he is of the opinion that it is the synovial capsule that is first attacked. Then I should like to know how is it that we have found the cancellated tissue of the navicular bone in its centre diseased, without any external appearance of ulceration on its surface? For, if the synovial capsule was the first diseased, I should expect the surface of the navicular bone next, and then its cancellated structure.

In my opinion, the cancellated tissue is first attacked, which runs on to ulceration of the surface of the navicular bone, and by the deposits on its surface the synovial capsule and perforans tendon become diseased, and afterwards we have the several adhesions.

Mr. Zundel says the animal is afraid to let his foot to the ground. If this was so, I should expect great pain on pressure at the heel—always a certain amount of fever—but this is not the case.

All horses suffering from navicular disease point the foot, but not resting on the toe, as stated by Mr. Zundel, the heel being on the ground the same time as the toe. In strain of the back tendons, suspensory ligament, or muscle of the shoulder, the animal rests on his toe, but more under the shoulder, and not so much pointed as in navicular disease. In the former cases the limb is much more flexed.

The animal with navicular disease comes out of the stable very stiff and lame, but improves when exercised. This, with other symptoms, is a very important one. The class of horses we find subject to this disease are well bred, with low action, which we call "Daisy Cutters."

TEXAS FEVER.

BY MR. TRUMBOWER, V.S. (June No.)

The above named disease is similar to, if not the disease itself, what we term splenic apoplexy. I was once consulted by a farmer who lost some of his young stock (two years old)—some of which died suddenly from splenic apoplexy, others from black quarter, and others from diarrhæa. Those suffering from the latter form lived for a considerable time, evidently relieving the system in this way.

I examined the field the cattle grazed on, which was in a low-lying district, and of a marshy nature. The grass had a peculiar dark green color, and it struck me at the moment that this land and grass was highly charged with gaseous material, which caused all the mischief. This field was manured each year, and seemed very nutritious; too much so, in my opinion, for young stock.

The land around this particular field was not near so nutritious, and the cattle on it were always healthy. After thinking the matter over, I advised my client not to let any of his cattle on this field till about one o'clock each day, and take them off at sunset. My reasons for doing so were that the gaseous material increased before and after the hours mentioned, and decreased from one o'clock to sunset. I never heard this gentleman say he had a case afterwards.

I should like to have the Texas farmers try this remedy—that is, let the cattle graze on upland pasture at night, and permit them on land with a marshy tendency only by day.

I am, dear Mr. Editor,

Yours respectfully,

T. KENNEDY, V.S., M.R.C.V.S.L.

REVIEW.

LE CHARBON ET LA VACCINATION CHARBONNEUSE, D'APRES LES TRAVAUX RECENTS DE M. PASTEUR. (ANTHRAX AND VACCINATION, FROM THE RECENT DISCOVERIES OF M. PASTEUR.)

BY CH. CHAMBERLAND. v

This work is a resumé of all that is known upon the question of vaccination against anthrax.

A portion of the book contains the various reports made by M. Pasteur before the Academy of Sciences, each one of which constitutes a discovery by itself. They possess, therefore, not only a scientific, but an historic interest, and prove that the principle of vaccination is well established notwithstanding the occurrence of a few cases of unsatisfactory and partial success in its application.

The numerous experiments and wonderful results are reported in detail, from those of Pouilly-le-fort to those performed in Hungary, in Germany, in Italy, in Belgium, in Switzerland, and in England.

Mr. Chamberland supplements some considerations upon the duration of the immunity acquired which, however, cannot yet be accepted as established, by reason of the shortness of the period since the inoculations were made.

The volume contains over 300 pages of interesting reading matter, and is illustrated with a number of plates representing the appearance of the blood as seen under the microscope, both in health and during various stages of development of the bacteridie.

OBITUARY.

Charles D. House, D.V.S., who had made a deserved reputation for his dexterity in operating on horses' mouths, died lately after a long illness.

On Monday, May 14th, Henry Kingman, a student of Montreal, and assistant to Dr. Williamson Bryden, of Boston, was

drowned while yachting. He was a young man of unusual promise, having secured several of the second year prizes at Montreal.

PERSONAL.

Prof. A. Liantard has been elected Corresponding and Honorary Member of the Société Vétérinaire d'Alsace-Lorraine.

Doctor R. Harrison has been appointed by the President and Fellows of Harvard University instructor in anatomy in the veterinary department of that institution, which is to be opened next fall.

Doctor J. F. Winchester, of Lawrence, has been offered the permanent position of Professor of Veterinary Medicine at Amherst Agricultural College.

Dr. A. Rose has been appointed quarantine inspector by the Treasury Cattle Commission, and his brother, W. Rose, D.V.S., is assistant to Dr. Salimon, the veterinarian attached to the Department of Agriculture at Washington.

NEWS AND SUNDRIES.

HYDROPHOBIA AMONG CATTLE.—Several cases of hydrophobia are reported among cattle in Mississippi.

HYDROPHOBIA.—Authentic reports come to us of the existence of hydrophobia among dogs in different States.

SNAKE STORY.—A sick horse at Davenport, Iowa, was given medicine that caused a green water-snake six inches long to come out of the horse's stomach.—*Prairie Farmer*.

PINK-EYE.—"Pink-Eye" prevails among the draft horses of Aberdeen, Scotland. The disease has had its run in Glasgow, Newcastle, and other towns of the kingdom.

GOOD COW.—R. P. Young, of Oregon county, Mo., has a cow that has never been the mother of a calf, and yet she gives two-

and a-half gallons of milk per day. The cow is four years old.—*Journal of Agriculture.*

TRICHINOSIS FROM EATING HORSE-FLESH.—Several Austrian journals report the case of a woman who suffered from trichinosis, caused, it is claimed, by eating horse flesh. The subject is being investigated.—*Medical Record.*

COMMISSION ON DISEASES.—The commission appointed to investigate epidemic diseases among cattle report that there are 33,306,355 cattle in this country, valued at \$659,000,000. Of this number about 10 per cent. perish every year of epidemic diseases.—*Ohio Farmer.*

ALMOST A DOUBLE PIG.—George Hallock, of Calverton, L. I., has a curiosity in the shape of a pig with seven feet. The animal has a head like an ordinary pig, but two bodies joined at the shoulders, with two fore-legs in the natural way and one sticking up from his back, and four hind-feet in good shape and two tails.—*Tribune and Farmer.*

A WONDERFUL COW.—The Jersey cow "Oakland's Cora," owned by Valanery E. Fuller, of Hamilton, Ontario, has furnished the following amount of milk, cream and butter in thirty-one days: Total weight of milk, 725 lbs., 8 oz.; total weight of cream, 216 lbs.; total weight of butter (unsalted), 81 lbs., 5½ oz.

GERMAN BOARD OF HEALTH.—Among the members composing the Bureau of Hygiene for the German Empire, the veterinary profession counts: Dr. Schutz, of the Berlin Veterinary School; Dr. Siedamgrotzky, of the Dresden Veterinary School, and Herr Lydtin, Veterinary Surgeon in Chief to the Grand Duchy of Baden.

VETERINARY LEGISLATION.—Under the law passed at the last session of the Legislature of Illinois, the State Veterinarian is authorized, when he finds a case of glanders, to have three appraisers estimate the value of the animal, and also of any property he may consider it necessary to destroy. The appraisers' estimate is certified to by a justice of the peace, and forwarded to

the Governor for payment. Any one disposing of an animal known to be glandered is liable to a fine of not less than \$50, or more than \$500, and any one who, having a glandered animal, fails to notify the State Veterinarian, is liable to the same fine.—*National Live Stock Journal*.

QUARANTINE NOTES.—Under instructions from Secretary Folger, Collector Robertson permitted 120 imported Holstein cattle from Holland to proceed to Syracuse, N. Y., without being detained in the government cattle quarantine at Garfield, N. J. This may be all right and is, of course, exceedingly satisfactory to the importers, but it is a precedent that may not prove satisfactory to the Department in the future, and will be likely to cause complaint from less favored importers. The grounds upon which this permission was granted have not yet appeared in print, that we have seen, but will probably be given to the public.—*Prairie Farmer*.

BREEDING LAWS.—A law has recently been established in Texas, which provides that no stallion will be allowed to cover mares without a certificate to the effect that he is clear of certain diseases. This certificate has to be renewed every year, and when the law is not complied with a heavy penalty is imposed on the owner of the stallion, the man in charge, or the man whose mare is served. Such a law in this or any other country would have the good effect of ridding the horse stock of some of the hereditary disease that is peddled around by diseased stallions.—*Texas Farm and Ranch*.

VETERINARY JURISPRUDENCE.—Some time ago Mr. I. M. Sweet entered suit in the United States Court, at Milwaukee, against A. E. Perkins, Esq., to recover damages sustained among his sheep by foot-rot. The prosecution claimed that his sheep were injured to the extent of \$5,000 by the disease, which was communicated to them by sheep purchased from Perkins. The defense claimed that foot-rot was not a contagious disease, and quoted authorities that it was primarily caused by sheep standing continuously in wet ground, the gland between the points of the hoof becoming diseased and the foot beginning to rot at once.

The case was submitted to the court, and a decision in favor of the defendant was rendered.—*Prairie Farmer*.

A FAST YOUNG MARE.—Byram Moulton, of Alexander, N. Y., sends the following to one of the local papers: "Three years ago I bred two mares to Van de Bogart's Blue Danube, by Woodford Mambrino, dam Cracovienne by Alexander's Abdallah. One of them, by Harry Clay, foaled a fine horse colt (Blue Clay) some time in June. The other, a Royal George mare, dropped a filly (Blue Georgie) August 6, 1881. The filly was rather small, and ran with its dam all winter. Sometime during the following spring, by an unforeseen accident, these colts got together; but as soon as discovered they were separated, and, as the filly was but a little over ten months old, I did not anticipate any trouble. On June 2, 1883, this filly foaled a fine, intelligent horse colt, above the medium size, with good limbs and action. This is something unheard of in this section, and under the circumstance I think Blue Georgie ought to be considered a very fast young mare."

ANOTHER OUTBREAK OF PLEURO-PNEUMONIA.—Staten Island has of late years been plagued with contagious pleuro-pneumonia among cattle, and several weeks ago there occurred another outbreak of the disease, which is spreading rapidly, to the alarm of the cattle owners on the island. One farmer has already lost nine head of stock, another five, another three, while two others have each lost a valuable pure-bred Jersey. Efforts are being made to combat the disease, but little can be done in view of the fact that the last State Legislature sapiently repealed the law relating to the isolation of infected cattle and the suppression of the plague. The State Board of Health having been appealed to, says that as bovine pleuro-pneumonia is not known to endanger human life, it is powerless to restrict the movement of infected cattle or take any steps to stamp out the malady. Application has also been made to A. M. Farrington, Superintendent of the United States Cattle Quarantine Grounds at Garfield, Bergen County, N. J., but he replies that he knows of no United States law authorizing interference in the matter. What can the Treasury Cattle Commission do or advise in this connection? It

is very evident that the repeal of the State law bearing on the subject was premature and ill-advised. The helpless condition of those likely to suffer from the diseases shows strongly the necessity of appropriate repressive legislation at the earliest opportunity.—*Rural New Yorker*.

HYDROPHOBIA.—For some time M. Pasteur, the French investigator, has been experimenting with a view of discovering whether the fatal infection of rabies can be disarmed of its power by inoculation. It is said that he now possesses four dogs which are proof against the infection, whatever may be the method of inoculation used or the virulence of the matter, while other dogs inoculated with the same virus invariably perish. The experimenter raises the question whether these four animals owe their impunity to spontaneous recovery from a mild attack which may have escaped observation, or whether they are naturally refractory to the disease. One of three dogs which he inoculated in 1881 survived, and though twice inoculated in 1882, he did not become rabid. The importance of finding a remedy for all forms of hydrophobia is magnified by two facts brought to light by the researches of M. Bert. One of these is that even if the saliva of a mad dog does not communicate rabies it may prove fatal by producing serious local injuries—in other words, the secretions of rabid animals have poisonous properties over and above the special rabic virus. The second fact is that it does not follow because a dog which has bitten any person does not die that the animal is free from rabies. These conclusions will add to the terrors of the disease. But there is some consolation in learning from M. Bert that the mere saliva of rabid dogs do not always communicate the deadly virus, and apparently never communicate it unless they contain the mucus from the respiratory organs, which seems to be the fatal portion of the saliva.—*Proceedings of Medical Society of County of Kings*.

RESEARCH IN SANITARY SCIENCE.—Subject to the conditions of their scheme, the Grocers' Company now announce as the matter of competition for their first Quadrennial Discovery Prize of £1,000 for original research in sanitary science the following

problem:—"To discover a method by which the vaccine contagium may be cultivated apart from the animal body, in some medium or media not otherwise zymotic, the method to be such that the contagium may by means of it be multiplied to an indefinite extent in successive generations, and that the product after any number of such generations shall (so far as can within the time be tested) prove itself of identical potency with standard vaccine lymph." The prize is open to universal competition, British and foreign. Competitors for the prize must submit their respective treatises on or before the 31st of December, 1886, and the award will be made as soon afterwards as the circumstances of the competition shall permit, not later than the month of May, 1887. In relation to the discovery prize, as in relation to other parts of the Company's scheme in aid of sanitary science, the Court acts with the advice of a scientific committee, which at present consists of the following members:—John Simons, C.B., F.R.S., John Tyndall, F.R.S., John Burdon Sanderson, M.D., F.R.S., and George Buchanan, M.D., F.R.S. All communications on the subject are to be addressed to the clerk of the Grocers' Company, Grocers' Hall, London, E.C. The Grocers' Company have issued a circular giving the conditions of the candidature and award.—*Veterinary Journal* (London).

AN ARRAIGNMENT OF AMERICAN VETERINARY SURGEONS.—A person who called himself a veterinary surgeon read a paper recently before the New York Farmers' Club, in the Cooper Institute, on the diseases of cattle and their treatment by veterinary doctors, whose methods he condemned. There were, he said, on the farms of the United States in June, 1882, 10,357,981 horses, valued at \$1,035,798,100; 1,812,932 mules, valued at \$181,293,200; 993,970 oxen, valued at \$49,698,500; 12,443,593 milch cows, valued at \$321,089,725; 22,488,590 other cattle, valued at \$562,214,750; 35,191,156 sheep, valued at \$527,867,340, and 47,683,951 swine, worth \$476,839,510, making a grand total of the value of dumb animals on farms in the country, \$3,154,821,125. This estimate, however, the lecturer considered by far too low, and he felt certain that the value of dumb animals in the

United States was about seven billions of dollars, judging from the fact that some animals are held at \$50,000, as in the case of Damascus, just sent by John W. Garrett, of Baltimore, to the King of Italy. It is a disgrace to the nation, the orator continued, that there is not one legally chartered, organized, and established veterinary college in the country. Veterinary science here lies deep down in the ditch of ignorance, and the billions of dollars invested in animal property, as well as the animals themselves, are left to the mercies and wantonness of chance. The country is flooded with bogus diploma mills, several of which are in this city and other parts of this State. The speaker went on in the above strain, but failed to mention where the New York diploma mills are. It is understood that parties in this city do practically sell veterinary diplomas, and it is to be regretted that some definite facts were not given.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Revue für Thierheilkunde und Thierzucht, Repertorium der Thierheilkunde, Recueil de Médecine Vétérinaire, Archives Vétérinaires, Journal de Zootechnie, Gazette Médicale, Presse Vétérinaire, Veterinary Journal, Veterinarian, Clinica Veterinaria, Journal de Dosimétrique Médecine.

HOME.—Medical Record, Medical Gazette, The Planet, Druggists' Circular, U. S. Veterinary Journal, Turf, Field and Farm, American Agriculturist, Spirit of the Times, National Live Stock Journal, Western Medical Reporter, Breeders' Gazette, American Cultivator, Prairie Farmer.

JOURNALS.—Farmers' Review, Tribune Farmer, Home Farm, Farm Journal, National Tribune, Iowa Farmer.

PAMPHLET.—Eighth Report of the Ontario Agricultural College.

COMMUNICATIONS.—C. C. McLean, W. H. Pendry, V. L. James, W. D. Critcherson, N. H. Paaren, A. A. Holcombe, J. C. Myers.

AMERICAN VETERINARY REVIEW,

SEPTEMBER, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 200)

CARTILAGINOUS QUITTOR—*Continued.*

The operation includes two principal steps: first, the removal of the part, or the whole, of the wall corresponding to the diseased cartilage; and second, the extirpation of the cartilage itself. The opinions of surgeons vary as to the amount of hoof which should be removed, and the extent of horny tissue to be taken off. In respect to the length of the superior border of the portion requiring removal, it is generally agreed that it must extend from the anterior extremity of the cartilage backward, that is, the two posterior thirds of the space reaching from the toe to the heels, or one-third of the circumference at the coronary band. But opinion continues divided as to the lower border. Lafosse, Senior, left it longer than the superior, and made the direction of the division of the groove correspond to that of the fibres of the hoof. Lafosse, Junior, accepting the idea of Solleysel and of Dieterichs, did not reach the sole with its groove, and removed only a portion of hoof parallel to the coronary band. Renault prefers crossing the fibres of the hoof with the groove, and brings the lower end of it to one-half the

dimensions of the upper border, its groove running backwards. Rey considers that to be running too far back and too near the heel, and recommends the groove to be so made that the lower border will have the same length as the upper, and for that reason advises that it be as nearly parallel as possible with the line of the heels. Lafosse, Senior, removes too large a portion of the hoof. Lafosse, Jr., leaves a portion of hoof which not only is useless, but which interferes with certain steps of the operation, when with the double sage knife, the skin is separated from the external surface of the cartilage, and also, when this is removed; and again, there is a separation between the severed portions of the quarters much greater than occurs in the process of Renault, which, like that of Rey, exposes the entire cartilage, and greatly facilitates the operation.

It is to be understood that the foot has been prepared; that the hairs have been clipped over the skin covering the cartilage; that the sole has been pared thin, down to the blood, as well as the bar corresponding to the diseased cartilage, so that the quarter has been allowed to project below the sole, to facilitate its eversion. The foot has been, moreover, well prepared by two or three days of poulticing, to render the hoof easier to be cut by the instrument, and the operation easier to perform, and therefore shorter in its various steps, besides placing the patient in the best condition for the endurance of so serious an operation.

After casting the animal upon a good bed, and fixing the feet, placing a temporary tremoslater with a strong cord, similar to a tourinquet, around the coronet, a groove is made, using various sized drawing knives, running from the anterior angle of the lower border of the cartilage downwards to the sole, following the direction recommended by Lafosse, Senior, Rey or Renault. This groove, made first with the widest, and finished with the narrowest of the drawing knives, must not touch the podophyllous tissue, and still must run through the entire thickness of the wall, without producing hemorrhage. In this step of the operation, as Girard correctly observes, short cuts of the knife are always better and quicker than those made by scraping or dragging with the instrument. It is also important to come down to

the soft tissue at the coronary band first, and successively downwards to the inferior border of the wall, as otherwise, as the instrument is moved from above downwards, with a certain amount of force, it might slip and cause a serious division or laceration of the podophyllous tissue. The separation is then made of the wall from the sole by another groove, extending from the end of the groove already made, on the quarter, back to the heels. This is done without difficulty, with a small drawing knife, when the foot has been properly prepared. There is, however, one point which usually offers more or less resistance when the quarter is removed. It is that where the wall is continued to the bars. This resistance is sometimes so considerable, that if much traction is made, the wall will break more or less in front of the heels, where it is comparatively thin, and it may consequently become necessary to remove, by itself, the portion which has remained attached. This little accident, however, can be avoided by ascertaining certainly before the extraction of the wall is effected, that the continuity of the wall and bars has been cut off. This being the case, the complete separation of the wall from the sole is made by running the sharp edges of the double sage knife through the structure of the living tissue underneath. The retraction of the quarter can then be proceeded with.

For this purpose a properly constructed lever is carefully introduced into the groove before mentioned, at the wall and sole of the foot. The inferior and anterior angle of the hoof at this point being then carefully raised, an assistant grasps it with the nippers, turning it back, tears it slowly, while the surgeon, with such a motion of the lever as may be necessary, assists in the tearing off of the portion of the quarter requiring removal. If adhesions remain, interfering with this manipulation, they are removed by cutting with a sharp instrument. As this separation of the wall reaches about to the coronary band, the separation is very easy, and no fear of lacerating the soft structures need be entertained. Care is necessary at this step, however, to avoid injuring the coronary band and the podophyllous tissue; to prevent which it will be prudent on the part of the assistant to press upon the band as the separation takes place.

This being accomplished, the edges of the wound are carefully examined; any projections remaining are removed, and the blood is sponged off. The double sage knife is then carefully plunged, with the convexity turned upward, (that is, towards the skin) between the external surface of the cartilage and the internal face of the skin, below the border of the coronary band, and then carried forward and backward, or as required, until the separation between the skin and the cartilage is completed, and the entire external surface of the cartilage is exposed. In moving the instrument backwards, it is necessary to be very cautious, especially while carrying the sharp edges downwards and inwards, in order to avoid injury to the coronary band and the skin, of which, however, there can be but little danger, when the knife is carefully held and properly directed. The succeeding step is to separate the skin from the cartilage; it is to be carefully raised and separated from its attachments underneath, which is sometimes a process quite difficult to accomplish, as the skin has always become more or less tumefied, and therefore has lost much of its natural flexibility and suppleness. Some operators, in order to avoid these difficulties, and overlooking the functions of the coronary band, cut it and remove it, with those portions of the skin which cover the cartilage. Others, more conservative, (Herting for example) cut it only through the middle, until they reach the superior border of the cartilage, and then, raising the two flaps of the skin, accomplish the same result with less cutting.

The destruction of the principal organ of the secretions of the hoof having been involved in the first method, and having now taken place, it can never be restored to a healthy condition, and the animal continues to be exposed to the frequently serious complications of "false quarter." By the second method, the production of a new wall is nearly always accompanied with the formation of a "quarter crack." The recovery is slow in either case, and more or less deformity is likely to follow. It is, then, the better and wiser plan to employ the mode of separation of the skin from below, and to avoid the division of the coronary bands or of the teguments.

The next step is the removal of the cartilage altogether. This

is done with the single sage knife, held firmly in the hand, either the left or the right, always, however, that corresponding to the side of the heel to be operated upon. Taking a point of rest with the flat of the thumb upon the plantar surface of the foot, the instrument is pushed between the skin and the cartilage, and the sharp edge turned backwards, with a firm rotary motion, downwards and forwards. The detached portion of cartilage is then seized with a pair of bull-dog forceps, and brought outwards, and the sage knife is brought forwards, downwards and outwards, from under the cartilage. It is a good plan, in order to make more room for working, to raise the skin and coronary band with a blunt tenaculum. The operation should always be commenced at the posterior part, in order to avoid the articular synovial capsules, which might be opened if the removal of the cartilage were begun forward. As the operator reaches the anterior part of the cartilage, which is situated almost over this capsule, it is prudent to hold the foot in excessive extension and thus avoid injury to the capsule. This is an important point to consider in the operation. The sharp instrument being carefully handled, every portion of the cartilage is taken off, either at once or by layers successively, until the whole is removed. It is thus accomplished in three or four pieces. In some instances the anterior portion is cut off by a longitudinal incision, made with a straight bistoury, following the direction of the posterior face of the coronet; the object, in this case, being simply to render the operation easier. The cartilage is thus removed, great care being taken to avoid opening the capsular articular bursæ. It is essentially necessary to remove the whole of the diseased tissues, in order to bring the parts into the condition of a simple wound. Still there need be no alarm if some small portions remain, more fibrous than cartilaginous, which, deep as they are, may protect the synovial capsules or the ligament; and moreover, they often slough off by themselves, with the abundant suppuration which follows.

To operate with the greater facility, it is well to have two forms of sage knife, one right and one left-handed, and some of extra strength, with which to remove the larger particles of

cartilage, the others being small, thin and light, being adapted to the more careful dissection necessary towards the lateral ligament, and about the synovial bursæ of the joint.

Towards the end of the operation, the surgeon will, with the finger, carefully explore the condition of the parts, to assure himself that the cartilage is entirely removed; that the articular synovial sac has been preserved intact; that the ligament of the joint remains perfect; and that the parts are well washed and ready for the dressings. Although in the absence of possible complications, the operation is now finished, it may yet be followed by some serious sequelæ, which we will next consider.

(To be continued.)

GLANDERS IN ILLINOIS.

(Reprint from the Report of the Illinois Board of Health.)

A few days prior to the last meeting of the Board the first information concerning what has since proven to be a wide-spread outbreak of glanders was received. As detailed in my report at that meeting, State Veterinarian Paaren was specially commissioned under the authority of the Board, and after consultation with the Governor, to visit the infected localities and institute the necessary measures for the suppression of the disease. In each case he was furnished a letter of instruction, in which, after informing him of the reported locality, he was authorized, in the event that he found the report well founded, to aid the local health authorities—town, board or county commissioners, as the case might be—by giving all needed directions and advice concerning the destruction of animals actually suffering with the disease; the quarantine of those that had been exposed; and the disposition of infected property, such as buildings, harness, halters, stable utensils, fences, sheds, hitching-posts, watering-troughs, &c. He was also requested to furnish a detailed report of the state of affairs as found in each locality, and a statement of his action. Up to the middle of June he had thus visited infected localities in White-side, Perry, Jackson, Piatt, Ford, Livingston and McLean coun-

ties, at a total expense to the board of \$212.13, which amount will be a charge upon the contingent fund for the suppression of epidemic contagious diseases, this use of the fund having been promptly approved by the Governor. So far as it is possible to judge at this date the results of the work thus far done have been successful.

The text of Dr. Paaren's report on the Genesee township (Whiteside county,) outbreak is herewith submitted.

OFFICE OF STATE VETERINARIAN, }
Chicago, Ill., April 17th, 1883. }

JOHN H. RAUCH, M. D.,

Secretary Illinois State Board of Health.

DEAR SIR:—In accordance with the request of the State Board of Health, dated April 11th, 1883, that I report to the Board of Health of Genesee Township, Whiteside County, Illinois, I have the honor to lay before you the following statement, embodying the result of my visit to that place:—

On April 13th, together with Dr. Trumbower, veterinary surgeon, of Sterling, Illinois, I left for Coleta, distant about thirteen miles from Sterling. I there met in consultation two members of the Board of Health of the Township, W. C. Hurless, esq., justice of the peace, and S. S. Cobb, esq., clerk of the township; the third member of the said board being absent from Coleta.

The infected farm of the late Wellington Conaway, distant about a mile and a half from Coleta, was visited the same afternoon. While all the dwellings and outhouses on the farms for miles around bear evidence of prosperity and good taste, the dwelling and outhouses of the Conaway farm, long before it was reached, were remarkable by a very conspicuous contrast to all the others.

On one side of the public highway, and about seventy-five feet distant from the latter, stands a dwelling, two stories high, and covering a space of about 25x60 feet, the length of the building being parallel with the highway. The floor of the building is raised about two feet from the surrounding surface, and there is a cellar underneath, full of putrid and decaying animal and vegetable matter, skeletons of hogs, dogs, etc., evidently the accumulations of years. A strong, penetrating, indescribable odor per-

vades the dingy and filthy rooms in the house, in spite of a very recent sham performance of disinfection with chloride of lime, which was said to have been sprinkled here and there, but perhaps only in the room that was occupied by the deceased father and son during their brief illness. The adjacent rooms, and the rooms up stairs, were occupied by the widow and about half a dozen children of both sexes, varying from about six to over twenty years old.

The dwelling is one of the old landmarks of the township, being upwards of forty years old, and it has evidently for many years back received no other repairs than such as were most necessary to ward off the worst of wind and wet, evidenced by rude and clumsy patching here and there, the weather-boards being disarranged and loose everywhere.

Along the highways, on both sides, is what in former days was a picket fence, but now only partly represents such a structure, half of it being down and all of it rotten, and the posts and remaining railing bearing evidence of having been used for hitching horses, who, with their teeth, have rendered it still more unsightly and useless.

Opposite the dwelling-house, on the other side of the public highway, and close to the same, is the stable, a rude structure of common boards, and about twenty-five by fifty feet, having, under an extension of the roof, on both sides, space for grain, &c. The stable has a sort of ceiling of loose rafters and boards, on which is placed a small quantity of hay and rubbish, and the shingled gable roof is about twenty-five feet high from the ground. There are five stalls with mangers, the construction of which is in keeping with the building.

In the stalls were five horses of various ages, and in moderately fair condition, as to flesh; otherwise they were dirty and rough looking. One by one they were led outside for inspection, and were found to be suffering with glanders in various stages of development.

After returning to Coleta, in the evening, I advised the Town Board of Health to send a constable with a written notice to the widow of the late Wellington Conaway, informing her that, under

penalty of law, she was from that moment and until further orders, prohibited from removing any of the said five horses, as well as six other horses, kept elsewhere on the farm.

On the morning of the following day, April 14th, together with the aforesaid two members of the Town Board of Health, and Dr. Trumbower, V. S., I visited a number of farms in the neighborhood around the Conaway farm, for the purpose of inspecting all the horses, as they were feared to have been more or less in contact with the horses on the infected farms. I also inspected several horses owned by various parties in the town of Coleta. The horses on the Conaway farm had been running at large for some time, and some of the neighboring farmers, while visiting Wellington Conaway and his son George, during their sickness and attending their funerals, had been in the habit of hitching their horses to the fencing above mentioned, and, consequently, reasonable fear was entertained as to their being tainted with the disease. The result of this inspection will be found stated below.

Thereafter the Conaway farm was revisited. On my recommendation, proper disinfection of the dwelling-house was entrusted to George W. Remage, M. D., of Coleta, and this gentleman accompanied us to the farm. The widow was inclined to resist all of our proceedings. I quietly informed her that I was present on behalf of the State Board of Health, and that our mission was one of peace. I also stated that in order to accomplish proper disinfection of the premises, it was necessary that the family move away temporarily, and that the town supervisors would accommodate her and her family. A volley of abuse and invectives was the reply; and she was then told that she should move peaceably, if possible, but forcibly, if necessary. After listening to the advice of Wm. C. Hurless, justice of the peace and member of the Town Board of Health, who, during her husband's life had been his counsellor and adviser, she relented and consented.

When, therefore, the stable was entered, the best one of the five horses was missing. It was suspected that the oldest son, about 20 years old, had taken away this horse; but the whole family pretended to know nothing about it. Being informed that a warrant for his arrest would be forthwith issued, the above-mentioned

son went quietly away, and, after an hour's absence, brought the horse panting and sweating as after a hurried run.

Five good, true and disinterested farmers and tax-payers, had been selected in the morning. They were now sworn in by the justice of the peace, and proceeded to put a valuation on the following property, which I had advised to be destroyed, viz:

Two horses and three mares, (one of these in foal;) the stable containing the horses; about eight hundred feet of fencing, railing, boards and pickets, being about four hundred feet along each side of the road, and also the fencing around the barn-yard; besides all the loose boards and planks lying around within forty feet of the barn. Also, a watering-trough, the halters, all the harness, and bridles, curry-combs, pitchforks and shovels; besides the frame work of a hay-wagon. Also (in the dwelling-house), two feather beds and pillows, together with the bedstead.

After being valued, the five horses were led away and shot, and the stable, together with the fencing, and all of the above mentioned things, upon which a valuation was put, will be burned as soon as the wind moderates.

I also advised that all the hitching-posts and railings in the streets, and the same adjacent to the churches, and at the blacksmith shops in the village of Coleta, be removed forthwith and destroyed. On the evening of the 14th of April there was, consequently, great scarcity of places where to hitch a horse.

*Horses examined in the vicinity of Coleta, Ill., April 13th
and 14th, 1883.*

No. 1.—Black horse, owned by Martin Overholzer; manifested a slight injection of the nasal mucous membrane. History:—Had been driven to, and tied to the fence in front of, the Conaway house several times during the past two months. Was ordered to be kept under surveillance during sixty days: allowed to work on the farm, but not to be exposed in public places, nor to be sold or otherwise disposed of until further notice.

No. 2.—Black horse, owned by the Rev. Mr. Bales, of Coleta; manifested a slight gluey discharge from the right nostril and a trifling enlargement of the submaxillary lymphatics. Was ordered

not to be tied to any public hitching-post, and if led away from home, to be tied in a cow-shed.

No. 3.—Gray horse, owned by Martin V. Overholzer. Has a thickening of the nasal mucous membrane, and slight enlargement of the left submaxillary lymphatic glands. Was ordered to be kept secluded during sixty days, and not to be sold or otherwise disposed of.

No. 4.—Gray horse, owned by Martin V. Overholzer; was received from the Conaway farm six or seven weeks ago. Was ordered to be kept secluded during sixty days, and not to be sold or otherwise disposed of.

No. 5.—Old bay horse, owned by Joseph Bushman; manifested a slight enlargement of the left submaxillary lymphatics, and slight infiltration of the nasal mucous membrane. Same precautionary measures ordered as above stated.

No. 6.—Brown gelding, owned by Joseph Bushman; had several small pimples on the inferior surface of the right alæ of the nose. Same precautionary measures ordered as above stated.

No. 7.—Bay gelding, two years old, owned by Joseph Bushman; manifested a slight enlargement of the submaxillary lymphatics, and had an aqueous discharge from both nostrils. Same precautionary measures ordered as above stated.

No. 8.—Bay gelding, three years old, owned by Wm. J. Howe, kept at Joseph Bushman's farm; had slight enlargement of the right submaxillary lymphatics, slight tumefaction of the nasal membranes on both sides. Same precautionary measures ordered as above stated.

No. 9.—Gray gelding, four years old, owned by Henry S. Bushman, kept at the same above-mentioned place. Had slight thickening of the nasal mucous membranes, swelling and tenderness of tendinous bursæ of the fetlock of the left fore-leg. Same precautionary measures ordered as above stated.

No. 10.—Brown filly, one year old, owned by Joseph Dietz; manifested enlargement of the submaxillary lymphatics on the left side, somewhat adherent to the bone, and thickening of the mucous membrane of the alæ of the nose on the corresponding side. Same precautionary measures ordered as above stated.

No. 11.—Gray mare, owned by George W. Ramage, M. D., of Coleta. Manifested infiltration of the nasal mucous membrane on both sides; together with a slight puckered roughness; granular aspect of the inferior surfaces of the alæ of the nose; also, some characteristic enlargement of the lymphatic submaxillary glands on the left side. History:—Dr. Ramage bought this grey mare, at three years of age, of Wellington Conaway, in the fall of 1881. Soon afterwards there appeared an enlargement of the submaxillary lymphatic glands, with subsequent suppurating abscess. After the abscess had healed she was apparently well. Exposing her to stormy and wet weather she caught cold and discharged very profusely from both nostrils. Mr. Conaway took her back for treatment, on or about the 1st of December, 1881, allowing her to run at large among his other horses. In the spring of 1882, she was extremely poor in flesh; but she was allowed to remain on the Conaway farm until the first week in November, when the owner took her home, and found her not entirely free from a nasal discharge. At the present date, April 14th, 1883, she is in fair flesh. Ordered secluded; not to be used by the doctor for any purpose whatever during sixty days, or longer, if necessary, and not to be sold or otherwise disposed of.

12.—Sorrel stallion, aged fourteen years, owned by the late Wellington Conaway. No. 13.—Bay mare, aged fourteen; same owner. No. 14.—Bay gelding, aged five years; same owner. No. 15.—Old bay horse, broken winded; same owner. No. 16.—Sorrel gelding, aged two years; same owner, No. 17.—Sorrel gelding, aged one year; same owner.

History:—Nos. 12 to 17, inclusive, were continually exposed to the glandered and condemned horses, during the past eight months, or longer, by running at large on the owner's farm. While none of these six animals shows any decided symptoms of glanders at present, they are, however, ordered to be kept secluded, under surveillance, and the widow of the late Wellington Conaway is ordered not to sell or otherwise dispose of them during sixty days, or longer, if found necessary.

On the 14th of April, the premises of the following farmers, whose horses were supposed to have been exposed to infection,

and which are located in Genesee township, were also visited, viz:—

F. M. Smith, owner of three horses.	} No suspicious symptoms found.
M. V. Crom, owner of three horses.	
Chas. Olmsted, owner of five horses.	
David McCombs, owner of four horses.	
Chas. Shultz, owner of one horse.	
Christ. Overholzer, owner of two horses.	

(To be continued.)

FATTY DEGENERATION OF THE HEART.

By A. A. HOLCOMBE, D.V.S.

On the 7th of June, I castrated a nine-year-old half-breed Norman stallion. He was in fine condition and had never shown any signs of disease. When the clams were applied, it was seen that both cords were very large and the blood-vessels unusually distended; so it was decided not to remove the testicle for some hours afterward. During the operation the animal struggled but little, and returned to his box apparently all right. About half an hour afterward he staggered forward and dropped suddenly to the floor, but arose again immediately. For a few minutes' time he seemed greatly excited, then became as quiet as usual. After a short time another period of excitement came on, when he was given a hypodermic injection of half a grain each of sulphate of morphia and atropia in solution. An examination of the cords from the wounds, was made, and a rectal examination of the inguinal rings, but nothing was found wrong. The respirations were somewhat accelerated and the heart-beat rapid and weak. The temperature was normal. The periods of excitement continued to recur at frequent intervals notwithstanding large doses of alcohol and morphine were given. At the expiration of five hours' time the patient had become so violent that he was cast, the testicles removed, and the hobbles left on. Another examination was made, but nothing was found to which the intense periods of excitement could be attributed. Two hours after the removal of the testicles the patient died.

A careful post mortem examination was made, revealing marked fatty degeneration of the heart. The right auricle was most affected; the right ventricle less so. The two cavities on this side had become greatly enlarged, at the expense of the walls, which were quite thin. The muscular tissues of the auricle and upper part of the ventricle were so fatty that free oil followed the knife on making an incision. All the other organs were healthy in appearance.

AN OUTBREAK OF HOG CHOLERA IN KANSAS.

By the Same.

In the early part of the winter of 1881-2, a disease appeared among the hogs on the farm of William Booth, near Winchester, Kansas. It was thought by Mr. B. and his neighbors to be measles. All the pigs and shotes, excepting one (20 in number), died. A few of the full-grown hogs had the disease and recovered. In March of this year, a sow in pig was purchased in Sedalia, Missouri, and taken to the farm. In May, a few days before pigging time, this sow died with the same symptoms shown by the pigs that had died in the winter of 1881-2. In April, another sow in pig was purchased from the same dealer, in Sedalia, and taken to the farm, where she died, in June, with the same symptoms as had affected all the others. A few days before death she had given birth to a litter of pigs, all of which soon died from the same disease. A few days afterward a full-grown boar died. These three were the only grown hogs that have died. On the 27th of June, I visited the farm and saw several sick pigs and shotes. They presented all the symptoms of hog cholera. During the day one of the pigs died and was sent to me by express in the evening. On the morning of the 28th, a post mortem examination was made. The lesions in the skin, the subcutaneous tissue, the intestines, and in the liver were all typical of hog cholera. The ulcerations of Peyer's patches were most marked; the thorax and pericardium contained considerable turbid fluid, the surface of the heart was mottled, and the pleuræ on the

left side of the chest had formed numerous adhesions. Owing to the want of an opportunity the blood was not microscopically examined. Altogether, thirty-nine animals have been lost. Fully alive to the gravity of the situation, Mr. Booth acquiesced in the adoption of stringent measures for the extermination of the disease. All the diseased animals were killed and either burned or deeply buried. The fat hogs were all butchered, and the twelve remaining pigs, apparently healthy, were turned into a field at a considerable distance from the infected yards. The old pens will be torn down and burned, and the manure, straw, etc., of the yards, will be carried to a distant field and also burned. No new pigs will be brought to the farm until next year, when a new yard and new pens will be built for their use.

COMPLICATED PUNCTURED WOUND OF THE PELVIC CAVITY.

BY WM. H. PENDRY, D.V.S.

On July 1st, I was called, near midnight, to see a small bay horse, about twelve years old, said to have had the rectum injured by backing on a shaft. When I arrived, I found the animal standing and having signs of considerable pain, but not to the extent that might be expected from a bad injury to that part. The history of the case was, that about two hours before I was called, while the driver was in the act of unharnessing, the horse was startled by some fire crackers, and plunged about, trying to get away, resulting in the shaft entering the rectum. There had been considerable hemorrhage, but of a short duration. On examination, I found there was an external wound on the right side of anus, extending from without downwards, for about an inch, and about one and a half inches in length, forming a single sac. The examination per rectum proved more interesting, from a surgical point of view, though not for the owner. I found that the shaft had entered the rectum, and apparently done no harm till it had gone about five inches, when it had caught the mucous membrane of the near lateral wall, and lacerated it for four inches, just deep enough to lay the fore finger well in. The shaft

then seemed to have left the lateral wall and caught the floor of the rectum, and at about the entrance of the pelvic cavity, making quite a small laceration. I found there was slight hemorrhage. I made the result of my examination known to the owner, stating that the case was very bad, as, no doubt, the inflammation (peritonitis) that would follow would result in death. The owner said, "*perhaps* it might not." I said, "perhaps," and was told to treat the horse, and do all I could for him. I cleaned the rectum well out and applied a styptic dressing, administering opium internally. The animal soon after appeared more easy, and I left him for the night.

July 2d. At times he appeared to have considerable pain, looking at his off flank, with a disposition to stand across the stall, but eating and drinking fairly. I washed the wounds with a solution of carbolic acid, and gave opium as before.

July 3d. Appeared to have less pain; still feeding somewhat; near hind leg beginning to swell from above downwards; very slight hemorrhage from wounds. Treatment as before. Pulse, 85 and weak; temperature, $102\frac{1}{2}^{\circ}$ Fah.

July 4th. Pain seemed to be more acute; very uneasy. On trying to enter rectum, found there had been hemorrhage, which was of a very dark color, with bad smell; arranged a rod with sponges, to use instead of hand; injected a solution of carbolic acid and tincture of opium, and gave pulverized opium internally as before. Soon after appeared to be more easy.

July 5th. Less pain, brighter, and inclined to eat; antiseptic dressing, with opium internally.

July 6th. Animal brighter, pain decreased, eating better, with a disposition to defecate; so inserted hand and emptied rectum, fœces being soft, but of quite a natural color, the bad smell having almost disappeared. Treatment the same; pulse about the same as on the 3d, but somewhat stronger; temperature about half a degree lower. Later during the day had natural passage with some pain.

July 7th. Everything about the same as the previous day, with passage; treatment the same; having some idea of animal weathering through, ordered alcohol in small doses, to be given with his water three or four times during the day.

July 8th. Not feeding ; appeared to be very dull, hanging his head in the manger. Showed pain on pressure being applied to his abdominal walls ; pulse so weak could hardly be felt ; swelling of leg slightly reduced, but pitted on pressure ; no disposition to move.

July 9th. Little change, except seeming to be weaker ; very dull ; appeared to desire to eat but the lips seemed to have no power to perform their function. Would drink well when the mouth was sunk in the water ; limbs stiff, could hardly be made to move ; could hardly feel pulse.

July 10th. No change from previous day, except for the first time I noticed that to micturate caused great pain, the urine passing in a very dribbling manner ; sheath swollen, leg somewhat reduced in size.

July 11th. I noticed that the animal started at the slightest noise ; examined for symptoms of tetanus, but got no confirmation of that idea. During the last three days had got very thin and now showed great weakness ; made examination per rectum, and found it full of liquid, with particles of fœces floating about. Detected large fluctuating swelling at further end of the larger laceration, which appeared to have considerably closed up. Also several smaller ones on the floor at the entrance of the pelvic cavity ; advised the owner to have animal destroyed, as he could not live much longer. As I was in the neighborhood of the stable late in the evening, I called and found that the poor brute had just dropped and was plunging about, passing, several times, a light colored liquid, mixed with blood. I at once put an end to his sufferings.

On account of the health authorities, I could not make a post mortem until the removal to the skinner's yard, which was after five o'clock the next evening, with the following result :

On the abdominal cavity being exposed, I found the peritoneum highly congested. The large colon was impacted, and was considerably congested, more particularly near the pyloric flexure. The small colon was nearly empty and but slightly congested, but of a dark yellow color. I next turned my attention to the pelvic cavity, which had been divided from the trunk by the men, and

found, on exposing the interior, it was of a deep leaden color, with an odor so strong that it was with considerable determination that I examined it. There were several abscesses formed, and the large one that I had detected in my former examination. The whole of the tissues seemed to be infiltrated with a pus-like matter. I even found this on dividing one or two of the muscles. Opening the rectum, I found it nearly as dark in color, but not infiltrated. The lacerations were just about as I had previously made out.

I now regret very much that I did not examine the whole of the organs of the abdominal, as well as of the thoracic cavity. As it was past the hour of closing down, I saw the men were anxious to get away, and this, combined with the fact that I had an appointment myself, influenced me to stop operations.

What I consider remarkable about the case is, the fact that I was never able to get a higher temperature than 103° , especially with such lesions. True, some of these might be, and were, no doubt, post mortem lesions, yet, most of them must have existed before death, as it had occurred eighteen hours previous. Then, again, the question rises in my mind, if the animal had been allowed to die, (he being destroyed) what would the death have resulted from—peritonitis, or pyæmia.

EDITORIAL.

CONTAGIOUS DISEASES IN THE UNITED STATES—THE NEED FOR BETTER LEGISLATION.

When calling the attention of our readers, in the last issue of the REVIEW, to a recent resolution of the House of Commons, in relation to animals affected with foot and mouth disease, we expressed the opinion that it was very doubtful whether this form of contagious affection could be found in the United States, and, in consequence, we could not consider this new restriction against our exportation other than an unjust and uncalled for action on the part of the English Government. The report, which we reprint to-day, of the Treasury Cattle Commission, which shows

that careful examination and researches have been made all over the continent without detecting the slightest evidence of the foot and mouth disease, will certainly do much to show the impropriety of the action of the House of Commons towards American stock. But, if we felt indignant at the injustice of this proceeding, we could not refrain from demanding evidence of the necessity of measures which would do much to relieve our people from vexatious restrictions, and would aid in getting rid of contagious diseases as rapidly and as thoroughly as possible.

We have asked for the appointment of State veterinarians and of sanitary veterinarians, connected officially with Health Boards of States and cities, and peculiar circumstances have recently occurred, which show not only the importance of such appointments, but that of severe regulations, clothing such veterinarians with power such as they may need for the official performance of their duties. These remarks are specially suggested to us by the difficulties encountered by Dr. Paaren, in Illinois, which were of such a nature that he was compelled to call upon the Attorney General of the State for his opinion as to his rights and duties. A somewhat similar case recently presented itself in New Jersey; when, notwithstanding the mortality of long standing amongst a number of horses, the similarity and the nature of the symptoms in all the animals, the undoubted evidence of contagion, the positive assertions of several agreeing veterinarians as to the diagnosis, the post mortem examination, etc., one individual resisted the official veterinarian, ignored his opinion, and, in fact, gave up his resistance only when threatened to have his business stopped by order of the principal officer of the city—the Mayor. The fact that such malignant and contagious disease existed to the extent that it did, in Illinois and in New Jersey, and that there are only imperfect laws relating to the disposition of such diseased animals, calls peremptorily for measures of reform and improvement in that direction.

Veterinary medicine has made rapid progress on this continent within the last few years, but we believe there is nothing which will better serve to elevate it in the esteem and appreciation of Americans than the services it may render in promoting the National wealth. Acting in his proper sphere and capacity,

the sanitary veterinarian, while properly armed with the authority of law, will not only look after the importation of contagious diseases from abroad, but will also be careful of the condition of the stocks at home.

NEW VETERINARY COLLEGE AND REGULATION OF THE PRACTICE OF VETERINARY MEDICINE IN CANADA.

The Deputy Minister of Manitoba has sent us the following extract of recent legislation passed in that Canadian province, authorizing the Board of Agriculture to establish a new veterinary college, and regulating the practice of veterinary medicine. The measures indicated are well calculated to check the growth of empiricism in that province.

VETERINARY SCIENCE.

The Board may establish a veterinary college for the instruction of pupils, may arrange for their examination, and grant diplomas certifying that they are competent to practice as veterinary surgeons. The Secretary-Treasurer of the Board is authorized to keep a register in which he shall record, on payment of a fee of \$10 for each registration—which fee is to be devoted to the purposes of the Board—the names of persons desiring to practice in the Province as veterinary surgeons. The only persons entitled to have their names so recorded shall be graduates of the veterinary school established by the Board, who may have received the diploma previously referred to; persons who at the time of the passing of the Act were members in good standing of the Veterinary Association of Manitoba; or persons possessing a diploma or certificate of admission to practice as veterinary surgeons in any part of the British Dominions by any body or association empowered by law to grant such diploma or certificate. Provision is made for the production to the Secretary-Treasurer, when a demand is made for registration, of the diploma or certificate upon which such demand is based and the Secretary-Treasurer, after registration, is to issue a certificate of the fact to the person whose name is so registered. Persons having registered are entitled to professional fees in attending any court as witnesses in cases relating to the veterinary profession. Any person not so registered appending to his name the term veterinary surgeon, or an abbreviation thereof, or in any way leading people to infer that he is a veterinary surgeon, or who prescribes or administers medicine to animals for pay, or in any way practices as a veterinary surgeon, is liable to a fine of not less than \$20 nor more than \$100. Clauses 14 to 20 of Chapter 18, 24 Vic., have been repealed in accordance with these provisions.

ARMY VETERINARY SURGEONS.

We publish on another page a letter from the commanding officer of the 8th Cavalry, making application for a veterinary

surgeon for his regiment. The communication speaks for itself, and is creditable to the intelligence of so distinguished an officer.

Surely the condition of the army veterinary surgeon promises speedily to undergo a change for the better, when officers of high rank and long service recognize the importance of securing for the service men who not only hold diplomas, but who have unquestioned ability. So long as present regulations exist, it cannot be expected that competent veterinary surgeons will remain in the service, for not only is the remuneration most inadequate for respectable living; under the circumstances, but worse still, there is no opportunity for promotion, pension, or retirement. Time spent in the service now, is, practically, so much time lost, for the increasing live-stock interests of the country demand more civil practitioners than all the colleges of the world have yet been able to supply, and the compensation is most liberal. If the Government would have an efficient army veterinary department, (and there can be no question as to her need) a reorganization must be effected on the principles which underlie the Medical Department. Until such changes are made the department will remain what it is now and always has been—a useless appendage.

MAJORITY OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION.

On the 18th of this month the anniversary meeting of the United States Veterinary Medical Association will be held in New York city.

For a number of years the members of this Association have assembled every six months, in New York and Boston alternately. The Association now numbers seventy-two members, from various parts of the country; most of them, however, from the eastern States, one might almost say from two States, as the largest number come from Massachusetts and New York. Still the Association is entering now upon its *twenty-first* year, in what might be called her *majority*. This we hope will mean for the society a new ambition and desire to work for the advancement and benefit

of the profession. It becomes an important duty on the part of the officers who are to be elected, as well as that of all members, to see that a new life is given to this Association to make it more worthy of its name.

Many changes ought to be made ; the regular routine of her young life should be pushed aside ; efforts ought to be attempted to increase the number of its members, not that we consider a large membership necessary for the quality of the work, but there is little doubt that if the number of members was larger, better and more useful results could be expected. Then again, if the membership were spread more through the States than it is, the places of meetings could be changed, and better professional intercourse realized between veterinarians throughout the land.

We hope the officers will see that the complaint which has been made at past meetings will not be heard again, viz.: the failure of committees to report upon subjects assigned them. There are many important subjects which the Association ought to take hold of, and one certainly that cannot and *must* not be ignored, is that of sanitary regulations throughout the country. The subjects of contagious diseases, as they exist amongst us ; the difficulties which are raised by European Governments against our live-stock trade on account of diseases, *which do not exist in our midst* ; the interference that official veterinarians meet with from the public when called upon to perform duties belonging to their positions—are not all these important questions, and worthy of the careful consideration of an Association which, on account of its age, if for no other reason, ought to be considered as the representative of the veterinary profession in the United States ?

We hope that when in our next issue we report the transactions of the coming meeting, it will be our pleasant duty to notice some steps in the proper direction toward securing for the *adult* life of the Association a greater renown than the one she has earned for herself during her youth, good, however, as this one has been.

PATHOLOGICAL PHYSIOLOGY.

UPON THE RESPECTIVE PART OF OXYGEN AND OF HEAT IN THE ATTENUATION OF ANTHRAX VIRUS BY PASTEUR'S METHOD—GENERAL THEORY OF THE ATTENUATION BY THE APPLICATION.

BY M. A. CHAUVEAU.

The following are the conclusions of the author:—

1st. The facts already known show that heat and oxygen, sources of all vital activity, may, for ærobic infectious microbes, placed in certain conditions, change themselves into agents of attenuation, alteration and death.

2d. These conditions of attenuation belong either to the microbes exposed to them, or to the attenuating agents themselves.

3d. To determine the conditions of attenuation which are inherent to the infectious substance, it is important to use a known microbe, the *bacillus anthracis*, and to take it in the cultures of twenty hours, at a temperature $+ 42^{\circ} 43^{\circ}$, cultures where it exists in the state of threads, or virulent batonnets, having a great aptitude to undergo the various changes of qualities that one wishes to give them.

4th. It is when the protoplasm of those *bacilli* is in a state of complete inertia, to the point of view of nutrition and evolution, that it is best disposed to resent the influence of the attenuating actions. But the hereditary transmission of the attenuation then takes place imperfectly.

5th. If, during the effects of the attenuating actions, the protoplasm has retained a certain prolific activity, the attenuation takes place with more difficulty, but is more completely transmitted to the future generations.

6th. No serious attenuation can manifest itself during the integral action of the developing faculty.

7th. This faculty being closely connected with the influence of heat and of oxygen, the attenuation in its various degrees depends then on the conditions which render these agents agenesical, dyogenesical, or engenesical.

8th. The absence of oxygen is an essentially agenesical con-

dition. Then, in the vacuum, the cultures prepared for attenuation modify themselves in a remarkable, regulated manner, under the influence of heat. From zero to $+ 50^{\circ}$, this influence reaches its extreme result, that is, the death of the microbes, in a length of time varying from 15 to 20 days down to a few hours. From the experiments of M. Bert, the increase of pressure of oxygen must also be placed amongst the agenesical conditions.

9th. If the temperature goes beyond the well known limits of the engenesy, it becomes first dysgenesical, then agenesical, and then has a powerful attenuating influence upon the cultures, either exclusively by itself, or with the assistance of the oxygen. The influence of this last is not very great, so far as attenuating force, only in the cases where the agenesy is due to the lowering of the temperature; and again this influence is of little activity. When the agenesy depends upon the elevation of the temperature, the pressure of oxygen, instead of assisting, diminishes attenuation very sensibly.

10th. It is, then, especially by excess of heat, in the absence of oxygen, that cultures become attenuated, altered or die; on the other hand, if the oxygen acts but little, by its pressure, as debilitating, it is when heat is missing. Thence it is seen that to produce their maximum of action, in adding their effects together, the two attenuating agents, heat and oxygen, must be placed in respectively inverse conditions.

11th. Material alterations always take place in the substance of the *bacilli*, whose activity is destroyed or only diminished by the fact of an attenuating cause—segmentation and partial disparition of the protoplasm, or its transformation in pseudo spores. At times these alterations are light and cannot give an idea of the serious effect produced on the physiological properties.

12th. Any culture prepared in typical conditions, that is to say, arrested in its development, after twenty hours of exposure to heat, $+ 42^{\circ} 43^{\circ}$, and which has gone through an agenesical period, during which a certain attenuation has taken place, revives and completes its growth when it is placed again in engenesical conditions. In the same way a second culture, containing the attenuated *bacilli* of the first culture, develops itself perfectly

well in the thermostat at $+ 35^{\circ}$ about. The very vigorous spores which result from those cultures do not possess all the virulency of those of normal cultures and are distinguished by a great aptitude to become still less active under the influence of heat at $+ 80^{\circ}$ 85° .

13th. Under this last condition, these spores constitute, for sheep, a virus of preventive inoculation which, by the facility of its preparation, the certainty of its preservation, its innocuity, and solidity of the immunity it gives, seems to be not inferior to any other protective agent.

14th. When the attenuation of the *bacilli* of the culture, prepared *ad hoc*, has taken place at a temperature only digenesical, that is to say, compatible with a slow combination of a certain growing movement (method of M. Pasteur), the spores of engenesical cultures following this first culture do not need a special heating process to complete their attenuation. They are directly in possession of the maximum of benignity that attenuation has given to the elements of the first culture.—*Gazette Medicale*.

EXTRACTS FROM FOREIGN JOURNALS.

FURIOUS RABIES IN A DONKEY.

BY PROF. BRUSASCO.

In October, 1882, an entire donkey was brought to the veterinary school of Turin, which presented peculiar symptoms, and seemed to suffer with a disease of the genito-urinary apparatus. His appetite was capricious, he was dull, balancing his head frequently, had an extraordinary venereal excitation, showed some tendency to bite, and had frequent painful passages of dark urine. The whole was accompanied with a certain weakness of the hind legs. When admitted to the school, he had refused all kinds of food, solid and liquid, for 15 hours. He was firmly secured, and placed under observation. He soon began to rear, throw himself down, to get up again, and constantly opened his mouth, as if ready to bite, chew the rope that tied him, or bite at the wall. His lips

and mouth were bloody; he tried to gnaw all surrounding objects, passed very often a few drops of cloudy urine.

The diagnosis of rabies was made, and he was destroyed. The history was, that some time previous, numerous cases of rabies had existed in the neighbourhood, and the probabilities were that he had been bitten.—*Il Medico Veterinario*.

A FAST OF FOURTEEN DAYS BY TWO CATS.

BY M. CARALLAZZI.

Towards the end of 1880, a gentleman from Latisana had some repairs done to the stone floor of the piazza of his house. During that time, the workmen raised a stone, which left open, while they went to their meal, a hole communicating with a cavity beneath. A cat and her kitten entered that cavity, which was closed up by the workmen afterwards, thus burying alive the two animals, to which the owner was much attached. Later in the day, search was made for them, but in vain. It was thought that they were lost, when, in the evening of the fourteenth day, the gentleman, in walking on the piazza, thought he heard their voice. The stone was raised, and the two animals, very weak and emaciated, came out of their prison, much the worse for their confinement. Both recovered quickly, by good feeding.—*Ibid*.

DYSTOCHIA IN A EWE BY ADHESION OF THE UTERUS TO THE ABDOMINAL WALLS—CÆSARIAN OPERATION—RECOVERY.

BY N. GUALTIERO.

In March, the author was called to visit a ewe at term, for forty hours, but which, however, showed no signs of labor. The abdomen was voluminous, the feeling gave the sensation of a fœtus, which was thought dead, on account of the absence of all movement. The general condition was bad, the animal was thin and without appetite. She had already had two normal deliveries.

The Cæsarian operation is decided upon. An incision of 18 centimeters is made on the linea alba, down to the peritoneum. An adhesion is then observed between the external walls of the

uterus and that membrane. The incision is enlarged, the uterus opened, the foetus and its envelopes are removed. The little cadaver is free from putrefaction. The incision is closed by sutures, and compresses of cold water put on, and kept in place with a wide bandage. A high fever followed, but soon the cicatricial parts progressed favorably. Towards the twelfth day, a portion of the uterus seems gangrenous; it is carefully brought outwards, and amputated. Two days later, the balance of the organ has to be removed. The cicatrization went on well, and the ewe was fattened, and sold afterwards for the butcher.—*Ibid.*

A CASE OF TORSION OF THE UTERUS IN A BITCH.

BY M. GUILLEREAU.

At the post mortem of a bitch that died from difficult labor, the author found the left horn of the uterus empty. The right, very large, was resting in the right side of the abdomen. It formed a deeply incurved arch, beginning forward, by the left ovary, stretched towards the right side of the vertebral column by its ligament, rolled upon itself, and ending behind at the junction of the two horns. At that point there was a contraction of the organ so great that the horn was reduced, upon a length of three centimeters, to the size of a lead pencil. This part having rotated round the principal arch, was twisted in a spiral manner. The round ligament was involved in this anomaly, in forming a wide twist, which entirely covered the contracted part of the uterine horn. In the walls of the left horn were several lacerations, through which the liquid of the amnios had escaped into the abdomen. The tissue of the wall was of a dark purple color. The horn contained two little puppies, perfectly formed, dead and swollen. After opening and emptying the horn, it was found that its cavity was entirely obliterated behind, in such a way that the horn as well as the uterine neck formed a funnel, ending at the twisted portion. It was evident that the left horn had not only twisted upon its axis, but also had undergone, in its posterior part, considerable atrophy with obliteration of the canal. Hence the complete impossibility of removing the foetus, except by gastro-hysterotomy. The author concludes in discussing the

question of priority of this alteration, and ends his paper by saying: The twisting of the uterus "*is possible every time that the length of the organ, when full, is sensibly greater in extent than the transversal diameter.*"—*Archives Veterinaire.*

CANCER OF THE TESTICLE IN A CRYPTORCHID HORSE.

BY M. MAURI.

The subject had for six months, in the left groin, a tumor, at first of small size, but which gradually increased to that of a man's head; at the same time he was losing flesh, and becoming less ambitious to do his work. This tumor, which had become enormous, and whose base was formed by the testicle, extended to the anterior extremity of the sheath and towards the stifle. It had a globular form, and could not be defined at its base. It was hard, resisting, covered with a few hairs, and traversed by quite large blood-vessels running on its surface. Its temperature was not higher than that of the surrounding tissues. At the exploration by rectum, it was observed that the superior left inguinal ring was largely dilated, and that a bosselated, hard, somewhat movable tumor, of the size of the two fists, was hanging over it by the mesentery.

The horse was operated upon, but died a short time after. Separated from the surrounding tissues, the tumor had the general appearance of a testicle of enormous dimensions. It weighed 4 kilogrammes 500 grammes, (about nine pounds). The microscopic examination left no doubt as to the nature of its structure. It constituted an encephaloid sarcoma, which had developed under the tunica albuginea of the testicle, whose resistance had allowed the organ to preserve its form while attaining its enormous proportions.—*Annales de Belgique.*

EPILEPTIFORM AFFECTION IN HOUNDS. (AURICULAR ACARIASIS.)

BY M. NOCARD.

Under this title is related an affection which particularly attacks hounds, and is characterized by epileptiform fits. "In

the kennel, at rest, nothing indicates the existence of the disease; the affected animals are as gay, lively, and in as good condition as the others." It is while *hunting* that the access manifests itself; loud hollowing, an anxious look, foaming at the mouth, uncertain movements, and then falling down in a fit of an epileptic nature. After a quarter or half an hour of rest, the animal seems to get over his trouble, and resumes his work as if nothing had happened. From information obtained, it seems that no other work or exercise but that of hunting will give rise to the access.

At the post mortem of dogs destroyed on account of this disease, the author found the external auditory canal containing a large quantity of cerumen, packed toward the membrana tympani. Under the microscope, a portion of this waxy secretion showed a great quantity of acarus in all shape of growth, belonging to the gender *chorioptes* (*Lymbiotes* of Delafond) and to the species described by Magnin, as the *chorioptes ecaudatus*. The treatment consists in washing the canal with a liniment made of sweet oil 100 parts, naphthol 10 parts, sulphuric ether 30 parts. The liniment is injected into the external auditory canal, and this is closed for ten or fifteen minutes so as to prevent the evaporation of the ether.—*Annales de Belgique*.

FOOT AND MOUTH DISEASE,

REPORT OF THE TREASURY CATTLE COMMISSION AS TO ITS
PRESENCE IN THE UNITED STATES.

WASHINGTON, August 2, 1883.

The Treasury Cattle Commission has made the following report to the Treasury Department in regard to the alleged existence of the foot and mouth disease among the cattle in this country:

Charges having been recently made in the British Parliament that cattle were being shipped from our ports infected with foot and mouth disease, and a majority of the House of Commons having voted for a resolution opposing the importation into Great

Britain of cattle from any country in which said disease exists, we feel it our duty to state the facts of the case so far as this country is concerned. After a most extended and almost exhaustive inquiry, your commission have been able to find no trace of foot and mouth disease, apart from herds just landed from Great Britain, and those herds have been in every case segregated until the infection has entirely disappeared. The nature and scope of our inquiry may be deduced from our report for 1881. Beginning with the great rendezvous of cattle at Kansas City, Council Bluffs and Omaha, we have made careful investigations along all the lines of cattle traffic as far as the eastern seaboard. In this investigation we have included all the great stock yards where cattle are detained for feeding, watering, sale, &c.; all the great feeding stables connected with distilleries and starch, glucose and other factories; all the city dairies where stockyards exist and where the herds are replenished from such stockyards, and to a large extent the great dairying districts into which cows are drawn from the above-named stock yards and lines of travel. Up to the present date we have made observations in the stock yards at the seaboard, the terminal end of our cattle traffic, and that to which all infection must gravitate, but apart from the imported cases above referred to, we have been unable to find a single case of the foot and mouth disease complained of.

CHARACTERISTICS OF THE MALADY.

The significance of the entire absence of this disease along the whole line of our cattle traffic and in the herds into which this traffic leads, can only be appreciated when considered in its relation to the nature of the disease and the unmistakable symptoms by which it is manifested. The following points are specially to be noted:

First—The foot and mouth disease is, perhaps, the most contagious malady known. It rarely enters a herd without striking down all the members of that herd simultaneously or nearly so.

Second—The susceptibility to the disease is all but universal on the part of warm blooded animals, but all cloven footed

animals are especially and about equally predisposed to it. It cannot be overlooked nor covered up, therefore, as can a disease which confines its ravages to a single genus; but sheep, goats and swine coming within the range of the infection contract and manifest the disease as readily and in as marked a way as do cattle.

Third—The period of latency or incubation is remarkably short, the eruptions of the malady often taking place in thirty-six hours and rarely being delayed, even in cold weather, beyond six days after exposure to infection. There is, therefore, no opportunity for concealment nor for the disposal of infected but still apparently sound animals, while a journey of four or six days from the west, with the attendant privations and febrile excitement, would infallibly determine the full eruption of the disease before the stock arrived at the eastern seaboard, and this although the infection had only been received after shipment on the cars.

NOT TO BE HIDDEN.

Fourth—The manifestation of the disease is not only so universal in the herd affected, but so prominent and unmistakable that it could not possibly be overlooked. No one could ignore for a moment the swollen digits, the lameness and the blisters or ulcers between the hoofs; the heat, tenderness, swelling and blisters or raw sores on the udder and teats and the abundant frothing and slobbering at the mouth; the frequent loud smacking noise made with the tongue and palate and the large rounded blisters or red angry sores on the mucous membrane of the mouth. These cannot escape the attention of the owners and attendants, and especially when a whole herd of ten, fifty or one hundred are suffering simultaneously. Much less can they escape the instructed eye of the professional veterinarian.

HISTORY OF THE DISEASE IN THIS COUNTRY.

In this connection it may be well to state that the invasion of the foot and mouth disease that swept from Canada over Northern New York and New England in 1871 created something

closely approaching a panic. The agricultural papers were full of the subject. State boards of agriculture convened and discussed the subject. A convention of delegates from different States met at Albany, N. Y., and it was the engrossing theme for every local farmers' club along the lines of infection. This invasion, imported into Montreal with two English cows, fortunately occurred in autumn, and the long seclusion of the herds during the ensuing winter virtually stamped it out, the infection not having extended beyond herds in enclosed pasturages or buildings. Most of our farmers are as ignorant of the disease to-day as they were in 1871, and any new invasion could not fail to produce a similar excitement and consternation. It should be added that our connection with the States as well as the United States brings us constant complaints of diseases supposed to be contagious, and we have not found any evidence of the actual existence of the foot and mouth disease at any point among our home herds. We cannot pass unnoticed the two latest importations of the disease from England. Two years ago the steamship *France*, of the National line, landed in New York a herd of Channel Island cattle suffering from foot and mouth disease. These were quarantined by the State authorities and the infection stamped out. The *France*, however, after an attempted disinfection, shipped a cargo of American beeves for the return voyage, and these, on arrival in England, were condemned as being infected with foot and mouth disease. This was undoubtedly contracted on board ship. The second case is that of the steamship *Nessmore*, which in March, 1883, landed in Baltimore a herd of Channel Island cattle suffering from foot and mouth disease. These again were secluded as soon as detected by the Pennsylvania authorities, and no evil consequences to our home herds can be traced. But the steamship *Nessmore*, after an attempted disinfection by the agents, shipped a cargo of American fat cattle, and these on arrival in England were found to be suffering from foot and mouth disease. This infection, unquestionably contracted on board ship, appears to have been the main, if not the sole, occasion of the recent questions and resolution in the British Parliament.

BROUGHT IN EACH CASE FROM ENGLAND.

That the infection was not derived from American herds, but from English, is beyond all dispute, alike in this case and in that of the France, two years ago. The same is true of our extensive invasion in 1871, which was derived from two imported shorthorn cows, and which was thoroughly extinguished without having gained any permanent foothold. We do not deny that other cargoes of American cattle may have been found suffering from the disease in question on arrival in England, but this is amply accounted for by the occasional use for these cattle of head ropes and other appliances that have been previously used for European cattle. But on this point we insist with the greatest confidence that there is no evidence whatever that our American herds are now suffering from foot and mouth disease, and that there is as strong evidence of its non-existence as can well be produced on the negative side of the question.

JAMES LAW,
E. F. THAYER,

United States Treasury Cattle Commissioners.

SOCIETY MEETINGS.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

A meeting of veterinary surgeons was held in Detroit, in the parlors of the Michigan Exchange, on Tuesday, July 31st, for the purpose of organizing a State Veterinary Medical Association.—Present, E. A. A. Granger, Lansing; D. G. Sutherland, East Saginaw; R. Jennings, Detroit; B. C. McBeth, Battle Creek; J. Hawkins, Detroit; W. J. Byers, Charlotte; C. W. Stowe, Detroit; A. M. Abbott, New Boston; J. A. Dell, Ann Arbor; A. J. Chandler, Detroit; S. Brenton, Jackson; A. J. Murry, Detroit; H. Audrain, Hamtraunck; C. A. Waldron, Tecumseh; R. Watkins, Grand Rapids; J. H. Ferguson, Bay City; D. Cummings, Port Huron. Upon motion of Dr. Murray, Prof. E. A. A. Grange, of Lansing, took the chair, Dr. Chandler, of Detroit, acting as Secretary. Dr. Chandler was

then called upon to state the object of the meeting, and in so doing, referred to the call that had been issued in the United States *Veterinary Journal* and *Michigan Farmer*, saying that its chief object had there been set forth, namely, the formation of a State Veterinary Association.

A committee was then appointed to draft the Constitution; also, a committee on credentials. After their several reports were adopted, The Michigan State Veterinary Medical Association was duly organized by the election of the following officers: President, J. Hawkins, Detroit; 1st Vice-President, D. G. Sutherland, East Saginaw; 2d Vice-President, A. J. Murry, Detroit; 3d Vice-President, D. Cummings, Port Huron; Recording Secretary, A. J. Chandler, Detroit; Corresponding Secretary, J. A. Dell, Ann Arbor; Treasurer, S. Brenton, Jackson. Board of Censors, A. J. Murry, D. G. Sutherland, J. Hawkins. The United States *Veterinary Journal* was adopted as the organ of the Association.

Mr. J. E. Daniels, Secretary and manager of the *Journal*, returned his thanks to the Association for the compliment, and in a somewhat lengthy address, spoke of the benefits to be derived from such organizations.

After appointing Dr. Chandler, of Detroit, to prepare a paper on Glanders, and Dr. Dell, of Ann Arbor, on Tuberculosis, to be read at the next meeting, the Association adjourned to meet at Detroit, on Wednesday, September 19th, 1883.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The twenty-first annual meeting of the United States Veterinary Medical Association will be held in the lecture room of the American Veterinary College, 141 West 54th street, New York city, on Tuesday, September 18, 1883, at 10 o'clock, A.M.

Election of officers, papers and discussion, and other business will come before the meeting.

CH. B. MICHENER, Secy.

CORRESPONDENCE.

UPON THE MICHIGAN VETERINARY CONVENTION.

89 CONGRESS STREET, DETROIT, August 14, 1883.

Editor Veterinary Review:

SIR.—A convention of Michigan veterinary surgeons was held in Detroit, on the 31st of July, and after considerable discussion, a State Association of veterinarians was formed. It is not my intention to give any detailed account of the proceedings of the convention, but rather to give my views in regard to some of the subjects which were discussed. I may mention that the constitution and by-laws of the Illinois State Veterinary Society were, in the main, adopted.

According to the constitution of the Illinois Society, those persons who have attended a veterinary college recognized by the State Board of Health, are eligible to become members of the Society. This, however, was objected to at our meeting, on the ground that the State Board of Health has no special knowledge of the status of veterinary colleges, and the convention, in framing the constitution of the Michigan society, transferred this power to the State Veterinary Association itself.

There was a good deal of discussion in regard to the terms on which veterinarians, who have not graduated from a recognized college, should be admitted to the State society. The Illinois Society lays it down, that the certificate of two physicians, as to the standing of a veterinary practitioner, who has been in practice for ten years, shall render him eligible for examination by the Board of Censors of the Society. The Michigan convention held that the certificates of two physicians would not prove the ability or standing of a veterinarian, as the training and experience of the physicians have not qualified them to judge of his qualifications. The Michigan convention accordingly dispensed with the physician's certificate, but they required that any non-graduate, coming before the Board of Censors for examination, must pay a fee of \$5. The examination is to consist of written answers in veterinary medicine and surgery, and a general oral examination.

There was considerable discussion as to the policy of requiring a fee from non-graduates who desired to be examined, and Mr. Daniels, of the United States *Veterinary Journal*, who was present at the convention, urged strongly that if the lines of the society were drawn too tight, so as to exclude existing non-graduate practitioners, no bill would be obtained from the Legislature to protect the veterinary profession, owing to the small number of members forming the State Veterinary Association.

I may say, in reference to the above argument, that at present there are few, if any, of the State Legislatures which will, at present, pass a law giving qualified veterinarians the exclusive right to practice their profession, as they are not numerous enough to make such a request with any show of justice; but to overcome this obstacle by adopting into the profession a large number of non-graduate practitioners, would be a most ruinous policy. It will be necessary for the veterinarians of each State to wait until they are in a position to ask for a protective law, and it would be a very injudicious policy to ask for such a law too soon, as it would be courting certain defeat. The status of the veterinary profession is at present low enough, and to those who have even a short experience as veterinary practitioners, it will be plain that it would become very much lower, by adopting into the profession a large number of veterinary practitioners who have received no professional education, and would also place the State veterinary societies in the position of competitors of the veterinary schools. I may state that there does not appear to be any objection to the admission of non-graduate veterinarians to the State societies, provided they are men of good education, general and professional, but I think that veterinarians of such a stamp are by no means numerous, and they would not swell to a great extent the ranks of the profession.

Some misconception exists in this country in reference to recent legislation by the British Parliament, tending to protect qualified or educated veterinarians in the practice of their profession. According to the recent Act of Parliament, a number of existing practitioners who have been in practice for at least

five years previous to the passing of the Act, will be entitled to continue in practice as veterinararians, but this recognition merely applies to their legal rights, and they have not been adopted as members of the profession, or as members of any of the veterinary societies which exist in Great Britain. I make this explanation to show that no parallel can be drawn between the action of the British Parliament, recognizing the right of a body of men to continue to follow the vocation by which they have made their living for a number of years, and the proposal to adopt into the profession non-graduate veterinararians, in sufficient numbers that the Legislatures of States might be requested to prevent any one from practicing except members of the State veterinary societies. It is obvious enough that the State veterinary societies may accomplish a great deal of good to the veterinary profession and to the people in general, by using their influence to improve the laws relating to the diseases of animals, but it is well that they should not be too active, and that they should not attempt to accomplish that for which neither the profession nor the people are prepared.

Yours respectfully,

A. J. MURRAY.

VETERINARY SURGEON WANTED.

HEADQUARTERS EIGHTH CAVALRY,)
POST OF SAN ANTONIO, TEXAS. }
JULY 26th, 1883. }

To the President of the American Veterinary College, New York City :

SIR,—I have the honor to inform you that there exists at the present time in this regiment a vacancy in the office of Junior Veterinary Surgeon. Can you recommend to me a graduate of your college? The pay amounts to \$75 per month, and the enclosed selections from the paragraphs of the Regulations of the Army, will give a general idea of the duties required. I should feel more confident in getting a good and reliable man through your selection than in any other way. Of one thing I would be

very particular, and that is in regard to the sobriety of the applicant. I should be pleased to hear from you at your earliest convenience.

Very respectfully, your obedient servant,

ERNEST OTIS,

Colonel 8th Cavalry, Commanding the Regiment.

ARTICLE XXIX.

VETERINARY SURGEONS OF CAVALRY REGIMENTS.

287.—Appointments as veterinary surgeons will be confined to the graduates of established and reputable veterinary schools or colleges. They will be appointed by the Secretary of War, in numbers not to exceed the legal establishment, and only on recommendation from the commanding officer of the regiment, supported by the requisite proofs of learning and skill, and by approval of intermediate commanders. (G. O. 36, 1879.)

289.—A veterinary surgeon is, from time to time, to visit all the companies of the regiment to which he belongs; to instruct the farriers and enlisted men in the proper and humane care of the horse, in order to the prevention and treatment of diseases; especially to teach the anatomy and pathology of the foot. He should illustrate his instructions by dissections and specimens, to show the nature and uses of all parts of the horse's foot, and he should also teach the principles and practice of horseshoeing. (G. O. 36, 1879.)

290.—Veterinary surgeons are to have free access to the stables, and their suggestions for the care and treatment of horses must be enforced by the authority of the commanding officer. (G. O. 104, 1868.)

291.—Veterinary surgeons and farriers should be encouraged to make and preserve collections of specimens obtained from post mortem examinations, illustrating the anatomy and pathology of the horse, in order to popularize and disseminate a knowledge of those important subjects in the army. (G. O. 36, 1879.)

292.—In order to encourage thoroughness and system in the study and treatment of the diseases of the horse, as well as to furnish information regarding the management of the Veterinary Department of the Army, a monthly report of sick and wounded for each company and battery, similar to that adopted by the Medical Department, should be forwarded by veterinary surgeons and company farriers, through the company and post commanders, to the Quartermaster General. (G. O. 36, 1879.)

True extracts from "Regulations of the Army of the United States," edition 1881.

J. D. HIOKEY,

1st Lieutenant and Adjutant 8th Cavalry.

PERSONAL.

Professor James Law, of the Treasury Cattle Commission, sailed for Europe on the Pavonia, August 15th. Professors A. Liautard and J. L. Robertson, of the American Veterinary College, sailed on the steamer France, August 22d. The three gentlemen are delegates to the Fifth International Veterinary Congress.

By an order in Council, dated August 8th, D. W. McEachran, of Winnipeg, has been appointed Provincial Veterinarian, acting under the Department of Agriculture.

VETERINARY JURISPRUDENCE.

AN EXPERT IN A CASE OF ROARING.

Q. What is your business ?

A. Veterinary surgeon.

Q. How long have you been engaged in that business ?

A. I have been practising some over twenty years ; for eight years I haven't done anything else.

Q. State what the defect in horses called "whistling," is, what it arises from and where is the seat of the difficulty ?

A. I have found it in my practice caused from ulceration of the throat—horse disease ; I have never seen a horse in my practice that whistled unless he had that disease ; it is located in the throat—right in the swallow.

Q. Can it, in your judgment, be produced suddenly—by a tight collar ?

A. I shouldn't think it could ; it might be for a few minutes, but as soon as the horse got his breath he would get over it.

Q. How have you discovered it was in the throat ?

A. By examining the throats of horses, and driving horses and getting out and examining them, and I find the trouble in the windpipe close to the jaw ; I have noticed in wind-broken horses the glands were ulcerated more or less.

Q. As a permanent trouble can it be produced suddenly, or is it the result of disease, continued disease?

A. I think it is the result of disease, the cause is the disease; I never knew a horse to be a whistler unless he had some disease.

Q. How would a collar, if it was too tight, affect the horse?

A. It would choke the horse for that time, but if you gave him a larger collar, probably it wouldn't affect him any; by choking a horse, at the time, it would cause him to whistle.

Cross-examination :

Q. How long have you resided in Cape Elizabeth? You reside there, don't you?

A. I do; I have resided there 47 years.

Q. Where did you first reside?

A. My folks lived in the center of the town, near Captain Scott Dyer; I lived a number of years at the Ocean House.

Q. Were you the plaintiff in the case of Maxwell against Gerry?

A. I was.

Q. Have you had a farm any of the time?

A. Yes.

Q. What part of the time have you or your wife had a farm?

A. I haven't had any for the last eight years; we had a farm, but Mr. Gerry managed to get it; I haven't lived on any farm for eight years.

Q. Where did you study to be a doctor?

A. I got it from practice and studying books.

Q. How many horses' throats have you ever dissected that were whistlers?

A. I have had a number myself, and I bought a horse myself and dissected him.

Q. Was he a whistler?

A. Yes, that is what I bought him for.

Q. When was that?

A. Somewhere about five years ago.

Q. What did you pay for him?

A. Five or ten dollars.

Q. Who did you buy him off?

A. Lombard, I think his name was.

Q. Where did he live?

A. I think in Westbrook.

Q. Any other disease about the horse excepting that?

A. There might have been.

Q. You say whistling takes place only when there is some disease of the upper part of the throat?

A. I say it is in the windpipe.

Q. How far down does the windpipe extend in a horse's neck?

A. It extends, if I understand it, to the lungs.

Q. Then it may be a difficulty existing anywhere from the glottis down to where the air passages separate?

A. I think it is a trouble in the upper part of the throat.

Q. Might there not be inflammation of the air passages to the lungs, so as to cause whistling?

A. If the trouble was in the air passages, he would breathe unnatural at all times.

Q. If his throat was ulcerated, why wouldn't he breathe unnatural at all times?

A. He wouldn't be likely to whistle all the time. In a bad whistling horse the throat is separated—the windpipe is separated—and one part of the windpipe shuts above the other. I mean there is a separation. As I have seen it one, part slips by the other. I can't express my opinion exactly here.

Q. What do you mean by the windpipe separating?

A. The windpipe is all in joints, and they will expand and shrink together. There is a membrane between each one that holds the bones together. Then there is a bunch in the throat where the bones aint formed like the rest. There is a joint in the windpipe. I consider it the same as the joint in a man's elbow.

Q. Do you say there is a joint in a horse's windpipe like the joint of your elbow?

A. Yes; it is right in the centre of the windpipe, and there is a ligature that holds it together, and there is where it separates, and causes him to whistle.

Q. Have you ever read "Youatt on the Horse?"

A. I have seen it.

Q. Give us the names of any works on the horse you have read?

A. I have read a number of different works. I have got Dr. Dadd's and Brown's works.

Q. Isn't it laid down by the best writers that this roaring or whistling is frequently caused by paralysis of the nerves or muscles of the throat?

A. It might be caused by a difficulty with the muscles of the throat—that is just what I said. It is caused in the first place by inflammation in the throat.

Q. What is the difference between inflammation and paralysis?

A. There isn't much difference?

Q. You swear that a person that has an inflammatory disease is in the same condition as a person suffering from paralysis?

A. If he has got the paralysis long enough to have a fever, it would be the same.

Q. You say if he has *got* paralysis—what do you mean by that?

A. If a horse had paralysis in the legs, it wouldn't affect his throat. I hardly ever saw a horse have paralysis.

Q. Is paralysis an affection of the nerves or muscles?

A. I should think of the nerves.

Q. Is it a disease, or the result of disease?

A. Sometimes it is the result of disease. When it gets along far enough to cause a fever, it is disease.

VETERINARY LEGISLATION.

CONCERNING GLANDERS IN HORSES, MULES AND ASSES.

An Act to amend the title of an Act entitled "An Act to suppress and prevent the spread of pleuro-pneumonia among cattle," approved May 31, 1881, and to add to said Act three additional sections.

Section 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly, That the title of an act*

entitled "An act to suppress and prevent the spread of pleuro-pneumonia among cattle," approved May 31, 1881, be, and the same is hereby amended, so as to read as follows: "An act to suppress and prevent the spread of contagious pleuro-pneumonia among cattle, and contagious and infectious glanders among horses, mules and asses."

Sec. 2. *And be it further enacted*, That there is hereby added to said act three additional sections, to be known as sections 10, 11 and 12, which shall read as follows:

"Sec. 10. *And be it further enacted*, That all rules, regulations, requirements, fees, salaries and penalties that attach to, or are embraced in the act aforesaid, shall apply and be enforced in like manner in the suppression of and prevention of the spread of the disease known as contagious or infectious glanders among horses, mules and asses; and that all officers, agents or employees named in said act, shall have all the authority to, and shall be required to enforce all laws laid down in said act for the suppression and prevention of pleuro-pneumonia among cattle, for the suppression of and the prevention of the spread of contagious and infectious glanders among horses, mules and asses, and for said purpose may use and exercise all the powers mentioned in said act.

"Sec. 11. *And be it further enacted*, That the sum of ten thousand dollars (\$10,000) is hereby appropriated for said purposes, or so much as is necessary, \$3,000 of which shall be used as a contingent fund, for which said veterinary surgeon shall give bond, with approved security, and a sworn statement to the Governor of the manner and necessity for such expenditure, out of any moneys in the State treasury not otherwise appropriated.

"Sec. 12. Whereas, the disease known as contagious and infectious glanders is now prevailing in many parts of the State, entailing great loss in property of the State, and endangering human life, therefore an emergency exists, and this act shall be in force from and after its passage."

(Approved June 13, 1882.)

OFFICIAL OPINION OF THE ATTORNEY-GENERAL.

STATE OF ILLINOIS. }
ATTORNEY GENERAL'S OFFICE. }
SPRINGFIELD, July 16, 1883.

N. H. Paaren, M. D., State Veterinarian,

SIR:—Your communication of the 13th inst. received, in which you ask my official opinion as follows: “The horse of George Grove, of Sterling, Illinois, has been exposed to glanders, and upon examination shows evidences of the disease to such an extent that I have deemed it my duty to order the horse appraised and killed to prevent the disease from spreading in the vicinity. Whiteside County has had many cases of this disease, and two men have died from glanders, having taken it from communication with horses thus diseased. It is claimed that I cannot order killed or quarantined any horses until the disease has become epidemic, and the Governor has issued his proclamation under Sec. 2 of the Act of 1881.”

Under this state of facts, you ask me if you are required to wait until the disease has become epidemic and the Governor has issued his proclamation of the fact, before you can take any measures to restrain or stop the disease, or can you, when you find a horse with the glanders, have it appraised and killed, or order a quarantine, without waiting until the disease has spread over the country to such an extent that it may be called epidemic?

I may say, in the beginning, that your duties and powers are confined and circumscribed by the terms of the statute authorizing your appointment. The act was passed May 31, 1881, and was amended June 13, 1883.

You have no power or authority, as State Veterinarian, except that expressly given by these acts, and such as may be necessary to carry out the powers therein expressly given. The act of 1881 applies only to pleuro-pneumonia among cattle. The act of 1883 extends the authority of the State Veterinarian to cases of glanders among horses, and declares, that all officers named in the act concerning pleuro-pneumonia among cattle, “shall have all the authority to, and shall be required to enforce all laws laid

down in said act for the suppression and prevention of pleuro-pneumonia among cattle, for the suppression and prevention of the spread of contagious and infectious glanders among horses, mules and asses, and for said purpose may use and exercise all the powers mentioned in said act."

Under this law we must go back to the act concerning pleuro-pneumonia to learn what are the powers and authority given concerning glanders. In the law of 1881, therefore, we find it is made the duty of the Governor to appoint a competent veterinarian, whose duty it shall be to investigate all cases of contagious or infectious disease, and to make visits of inspection to any locality where he may have reason to suspect that contagious or infectious disease may exist.

In Sec. 2 it is made the State Veterinarian's duty to order a quarantine of any infected premises, in all cases of pleuro-pneumonia among cattle, and if the disease becomes epidemic, the State Veterinarian shall notify the Governor, who shall then issue a proclamation forbidding all animals from being removed, &c.

This section then provides as follows: "In case of epidemic, as aforesaid, the State Veterinarian shall order the quarantine of infected premises, and shall order the slaughter of diseased animals thereon, and in cases of pleuro-pneumonia among cattle, he shall, as hereinafter provided, order the slaughter of all cattle upon the premises which may have been exposed to contagion, but before doing so, he shall call in consultation with him two reputable veterinarians or practicing physicians, residing within ten miles of the infected premises, and shall not order the slaughter of any animals, not actually diseased, without a written order signed by one or both of said veterinarians or practicing physicians."

It is upon the construction of this section that all your questions hinge. To be directly applicable, we should read, under the law of 1883, horses for cattle, and glanders for pleuro-pneumonia. We thus read the first clause of Sec. 2, of this act:

"In all cases of glanders among horses in this State, the State Veterinarian SHALL HAVE AUTHORITY to order the quarantine of infected premises."

The power here given is a discretionary one, which the State

Veterinarian may exercise, or not, as he may deem proper. It is further provided, in the same section that, in case the disease shall become epidemic, the State Veterinarian shall notify the Governor of the fact, who shall thereupon issue his proclamation, etc. It then provides, "In case of epidemic, as aforesaid, the State Veterinarian SHALL order the quarantine of infected premises," etc. In this case there is no discretion left with the State Veterinarian, but he MUST quarantine the infected premises.

Therefore, in answer to your question concerning your power and duty to order quarantine of any premises, I will say that, if the Governor has proclaimed any district or locality infected with the disease of glanders, you MUST quarantine all premises where the disease has been, within the infected district. But if no proclamation has been issued and you have discovered the disease in any animal mentioned in the law, you may, if you deem proper, order the premises where the animal was kept to be properly quarantined.

Concerning your power to order the slaughter of glandered animals, I find that the law provides that, "In case of epidemic, as aforesaid, the State Veterinarian * * * shall order the slaughter of diseased animals thereon."

This has reference solely to districts or localities proclaimed by the Governor to be infected with the disease. In such districts it becomes your duty to order slaughtered ALL animals diseased, without further ceremony, except finding the fact that they are diseased animals and within the district discribed in the proclamation, and of course, complying with the other provisions of the law concerning appraisement, etc.

But this section further provides: "And in cases of glanders among horses, he shall, as hereinafter provided, order the slaughter of all horses upon the premises which may have been exposed to the contagion; but before doing so, he shall call in consultation with him two reputable veterianarians or practicing physicians," etc. This is a complete sentence, and gives complete power in itself, independent of any other authority in the act. It, in substance, declares that the State Veterinarian shall, in cases of glanders among horses, order slaughtered all horses exposed to contagion, whether they are in an infected district or

not, or whether an epidemic exists or not, or independent of the fact whether the Governor has issued a proclamation or not. But in all such cases, the State Veterinarian must be backed by the order of at least one of the two persons called by him in consultation. This clause of the section, however, has reference only to animals that have been EXPOSED to contagion, not to those actually diseased. The latter clause of the section declares that the State Veterinarian "shall not order the slaughter of any animals NOT ACTUALLY diseased without a written order signed by one or both of said veterinarians," etc.

Applying the ordinary rule of statutory construction to this clause, viz: *inclusio unius, exclusio alterius*, the clause would read: the State Veterinarian may order the slaughter of animals actually diseased, but not those merely exposed, without the order, etc. In construing statutes, also, every word and phrase must be given some value, as it cannot be presumed that the Legislature used unnecessary or unmeaning words in a law. Therefore, no other meaning can be given these words "shall not order the slaughter of animals not actually diseased without," etc., except that he MAY order their slaughter, if actually diseased, without an order, etc. I am therefore of the opinion that the State Veterinarian may order slaughtered all animals named in the law of 1883, viz: horses, mules and asses that are in fact diseased with the glanders, of his own motion, and that he may order slaughtered all animals exposed to contagion from said disease, if ordered to do so by one or both of the reputable veterinarians or practicing physicians whom he may call into consultation with him. On the next question submitted by you, as to when it is necessary to call upon the two reputable veterinarians or practicing physicians, I may add that, it is not necessary, in any case, except when you may deem it advisable to order slaughtered, animals exposed but not actually diseased.

This law and the amendment thereto is an effort on the part of the Legislature to put in force the police power of the State, to prevent the spread of pleuro-pneumonia among the cattle of the State, and glanders among the horses, and no one can doubt that it was high time that this should be done, when we learn that the markets of Europe have been closed to our cattle, be-

cause of the one disease, and that two men have died in White-side county because of the other. Under these circumstances private rights should give way before the public good, as it often becomes necessary to tear down or blow up private buildings before a fire, that a city may be saved.

Sec. 5 of the act of 1881 gives an ample remedy if you are in any way interfered with in the performance of your duty. It provides that, "if any person or persons shall wilfully or maliciously obstruct or resist the State Veterinarian in the discharge of his duty, as hereinbefore set forth, shall be deemed guilty of a misdemeanor, and upon conviction of either charge, shall be fined," not less than \$50, nor more than \$500 for each offence. It becomes the duty of every officer of the State to enforce this law, and if you are obstructed or interfered with in any way, in the performance of your duties under this law, you should at once report the fact to the State's Attorney of the county in which the obstruction or resistance is made, who will institute proceedings to enforce the penalties provided.

Public policy and the public good requires the careful extermination of all dangerous, contagious, or infectious diseases, and no good citizen will obstruct or interfere with officers who are acting alone for the public benefit, even if in some cases, necessarily, private property may be destroyed.

I have herein discussed the questions involved so exhaustively, because the law is a new one, and in the hope that those persons disposed to resist its enforcement, may be enabled to see both sides of the question, and cease their opposition.

Very truly yours,

JAMES McCARTNEY,
Attorney-General.

NEWS AND SUNDRIES.

HOG CHOLERA.—Hog cholera is again reported from Pennsylvania.

PREVALENCE OF PLEURO-PNEUMONIA.—L. McLean is reported to have said that eight per cent. of cattle on Long Island are affected with this malady. He recommends inoculation.

GLANDERS.—Glanders among horses is being found in many of our large stables. It exists in Illinois, Newark, N. J., Brooklyn, and no doubt in many stables where its existence is denied.

TEXAS FEVER.—Several cases of Texas fever having been discovered among Texas cattle brought to Worcester, Mass., it is stated that the Board of Cattle Commissioners will issue an order forbidding the bringing of any more of these cattle into Massachusetts.—*Am. Cultivator*.

GLANDERS.—The State Veterinarian of Illinois seems to be vigorously enforcing the glanders act. At Mansfield, Piatt county, he last week had four horses shot and burned, together with harness, etc. The diseased horses were appraised at \$85.—*Prairie Farmer*.

RABBITS CARRYING CONTAGION.—Do jack rabbits carry scab from one range to another? It is said they do. A Colorado man writes: Thinking it might be of value to owners of sheep, I will state something which has come under my observation during the past five months. In riding on the plains I often take my gun. At different times I have shot jack rabbits, and whenever they are near sheep ranges they invariably have the scab. I am well satisfied they carry it from one range to another. A small premium offered would exterminate them, and save much damage to the sheep industry.—*Journal of Agriculture and Farmer*.

ITCH IN THE CAT.—A correspondent of the *British Medical Journal*, Dr. John Reid, writes as follows regarding a case of "acarus" in a cat: "The cat in question, when seen for the first time (it being a stray cat), was greatly emaciated, and died on the following night (January 5, 1883). The hair on one side of the face and neck, including the ear, was matted so as to resemble one large scab. The itch-insect and eggs were detected in large numbers. The cat's liver contained many abscesses of the size of a pin's head; the lungs, etc., appeared to be normal. Does the cat infect children, etc.? do these infect the cat? or is there mutual infection?"

⚡ THE TRICHINÆ IN CHICAGO PORK.—In the present agitation over trichinous pork and adulterated lard, the investigations made some years ago by Dr. W. T. Belfield and Mr. H. F. Atwood, of

Chicago, may be cited. They examined the pork in the various packing-houses of that city, and found trichinæ present in eight per cent. of the specimens, the parasites averaging about 20,000 to the cubic inch. These gentlemen believe that infection of human beings with trichinæ is very much more common and less injurious than is commonly supposed. They have made the interesting discovery that a small portion of sulphurous acid dissolved in the brine in which hams are pickled will kill all the trichinæ.

SUDDEN DEATH AT THE BEGINNING OF CHLOROFORM INHALATION.—Dr. Janovitsch Tschainsky relates in *Medizinski Westnik*, Nos. 12 and 13, 1883, the case of a peasant, twenty-eight years of age, upon whom he was about to operate for the removal of a lupoid growth from the under lip. Hardly had the patient taken two whiffs of chloroform when respiration ceased and he was dead. The necropsy revealed fatty degeneration of the wall of the right ventricle, while that of the left appeared to be normal. The reporter attributed the death to psychic causes, the dread of the operation. He relates several similar cases, among which was that of Cazenave. In this case the surgeon desired to operate upon a very nervous patient without chloroform, and in order to deceive him held a bag of pure air before his mouth; he breathed four times and died. Desault, being about to cut for stone, drew his finger-nail across the perineum to indicate the line of incision. The patient in his alarm gave a shriek and died.

INFECTION THROUGH MILK.—About three-quarters of a mile from Bacton Manor in Herefordshire, is a wretched little building known among the country-folk as “The Mill.” The people of this mill keep two cows, and by them the Union is supplied with milk. A short time ago one of the mill children took scarlet fever, and soon afterwards it spread to the Union, which is at some distance from the “Mill,” seven out of the thirty children inmates being almost simultaneously attacked. The infection has since been traced to the milk-supply. Milk has been so often shown to be a vehicle of zymotic infection, that it is a wonder how any one can yet be ignorant of the fact. Yet the mischief here was due to ignorance on the part of the miller, for it seems that he made no secret of the existence of the fever in his house, and he daily took the milk to the Union in person.—*London Herald of Health.*

GLANDERED CATTLE.—A singular case was lately tried in an English court. An officer of the society for the prevention of cruelty to animals, at Wolverhampton, had a couple of beeves, a cow and an ox, killed as unfit for human consumption because of a peculiar disease with which both were afflicted. At the trial to fix damages, Dr. J. Woodroffe Hill, F.R.C.V.S., testified that, in his opinion, the disease was glanders. Mr. C. A. Newnham, surgeon, and the magistrate who had condemned the animals, agreed with Mr. Hill. Mr. J. H. Lowe, medical officer of health for the borough, also considered it glanders. Hill said he had been in practice seventeen years, and had never seen a glandered cow until this one, but the disease had been produced in other ruminants, also in poultry and rabbits. Dogs, until recently, were considered exempt, but this year there was overwhelming evidence to the contrary, and so it might be in cattle. He could not tell the period of incubation of glanders in cattle. The defense produced several veterinary surgeons who agreed that a case of glanders in cattle had never been heard of, and that they did not believe it could be produced in them. Prof. Pritchard had attempted to inoculate a cow with glanders, but did not succeed. Prof. Simmons had also tried and failed. The finding was "there was a very strong presumption at present that glanders could not be found in a cow. Therefore, under these circumstances, and finding a difference of opinion in the medical evidence, he could not convict." The testimony for the prosecution is exciting much discussion in veterinary circles in Great Britain. At this time, when glanders is so prevalent in this country, it is a matter of some importance for people to know if cattle are liable to its ravages. The Department of Agriculture hospital, at Washington, will do well to institute a series of experiments in order to demonstrate the truth one way or the other.—*Prairie Farmer*.

FOOT AND MOUTH DISEASE.—Mr. Dodson, Chancellor of the Duchy of Lancaster, stated on the afternoon of August 17, in the House of Commons, in response to an inquiry by Mr. Duckham, that it was an undoubted fact that the foot and mouth disease had been carried from England to America. He said that the Canadian cattle now suffering with the disease at Bristol

had been in contact at Liverpool with infected animals which came from Ireland. He pointed out, however, that the American quarantine system in relation to cattle diseases gave no security against the conveyance of disease by men attached to the quarantine stations and by articles taken out of the quarantine yards. The system, he said, only took into consideration the animals themselves.—*New York Herald*.

VETERINARY HONORS.—Count Ercolani, of the Bologna Veterinary School, has been elected a member of the Superior Council of Public Instruction, by the Faculty of Human and Veterinary Medicine of that University. Professor Vallada, Director of the Milan Veterinary School, has been nominated an Officer of the Crown of Italy.

CATTLE QUARANTINE.—The Secretary of the Treasury has issued a circular giving public notice that neat cattle arriving in the United States from any part of the world, except North and South America, will be subjected to a quarantine of ninety days, counting from the date of shipment. As the Dominion of Canada maintains quarantine for all imported cattle, no quarantine for cattle imported from Canada is provided. Quarantine stations for cattle have been established as follows: At Deering, for Portland, Maine, for about 215 head; at Waltham, for Boston, Mass., for about 300 head; at Garfield, N. J., for New York, for about 350 head, full-grown animals.

THE LATE MISS DICK.—The death at Burntisland on the evening of Saturday last, at the advanced age of 92, of Miss Mary Dick, sister of the late Professor Dick, founder of the Edinburgh Veterinary College, is an event of some public interest, both retrospectively and prospectively. She was intimately associated with her brother in founding and endowing the College, and since his death in 1866, when the management was transferred to the Town Council of Edinburgh, Miss Dick has continued to take the warmest interest in the prosperity of the institution. Under her brother's will, Miss Dick had been constituted residuary legatee, and managed the Burntisland property personally. By her death a large annual revenue from house property and fens will be available for the service of the College,

which henceforth may be expected to be placed on a far more satisfactory basis, and to offer still greater advantages for the cultivation of veterinary science. Miss Dick was born on 1st June 1791, at Whitehorse Close, Edinburgh, where her father, who was a blacksmith, had a forge. Her reminiscences of old Edinburgh were very entertaining. She used to relate that she had been offered the perusal of several of Scott's novels while yet only in MS., but had declined to read them both then and ever afterwards. This is doubtless to be explained by the fact that her political and ecclesiastical proclivities lay from the first in a direction diametrically opposed to those of Sir Walter Scott. At the age of twelve she crossed the Firth in an open boat to Kirkcaldy, paying 2s. for her passage, part of which consisted in being carried from the boat to the landing place on the boatmen's shoulders. Through her brother she enjoyed a very extensive acquaintanceship both at home and abroad, which she kept up to the last, every day posting and receiving a considerable number of newspapers and correspondence bearing mainly on public questions. She was an ardent Liberal, and advocated female suffrage; greatly satirical on modern extravagance and effeminacy; boasting, for example, that she had never taken a walk for health in her life, and that she had never had a cough. Her funeral takes place to-morrow, when her remains will be interred in the Calton Burying-ground, Edinburgh.—*Scotsman* July 17, 1883.

BEQUESTS TO THE DICK VETERINARY COLLEGE AND THE UNIVERSITY OF EDINBURGH.—Under the will of Miss Mary Dick, sister of the late Professor Dick, founder of the Edinburgh Veterinary College of that name, it is, we understand, provided, after the payment of £100 to the Society for the Benefit of Widows of Veterinary Surgeons and certain other legacies, that the residue of her estate, with the accumulations of the free income to be derived from the same, shall be held by the trustees of the testatrix until it amounts to £20,000, when it shall be divided into two equal portions, £10,000 being applied in the furtherance of veterinary science in connection with the Veterinary College in Clyde Street, and the other £10,000 in the found-

ing of a Professorship, either of comparative anatomy or of surgical anatomy, whichever of these Chairs the trustees shall consider to be most required in the interests of medical science, in the University of Edinburgh, "in memory of the late Dr. John Barclay and the late Professor John Goodchair," the testatrix adding that she was "led to found this Professorship in memory of these gentlemen, in respect of the great regard that my late brother entertained for them, and that they, I believe, entertained for him." While declaring that the period of accumulation shall not exceed twenty-one years from the date of her death, the testatrix provides that in the event of the £20,000 being reached before the expiry of that period, her trustees shall have full power, after making the division, to continue to hold both or either £10,000 for twenty-one years, and until such an amount is accumulated as may be, in the opinion of her trustees, for the most advantageous promotion of the objects contemplated. In a codicil to her will the testatrix states that she had erected certain houses at the Kirkton, Burntisland, on the property belonging to her brother's trustees, and life-rented by her at a total cost of £800; but she had not then got any title to the ground on which the houses were built; and, in the event of her death before getting such title, and the same thus falling to her late brother's trustees, the sum of £800 more shall be employed by her trustees in the furtherance of comparative anatomy and surgery than in the furtherance of veterinary science. Of the trustees under the will, Professor Turner, Professor Chiene, and Professor M'Kendrick (Glasgow) are declared by the testatrix to have been appointed "in consequence of their special qualifications to carry out" her wishes "in regard to the disposal of the residue" of her estate.—*Scotsman*, August 7, 1883.

EXCHANGES, ETC.; RECEIVED.

FOREIGN.—Archiv für Wissenschaftliche und Praktische Thierheilkunde, Revue für Thierheilkunde und Thierzucht, Clinica Veterinaria, Recueil de Médecine Veterinaire, Archives Veterinaris, Presse Veterinaire, Annales de Belgique, Veterinary Journal, Veterinarian, Gazette Medicale.

HOME.—Prairie Farmer, Rural New Yorker, National Live Stock Journal, Breeders' Gazette, Medical Record, American Cultivator, etc.

JOURNALS.—Farm Journal, Home Farm, Western Farm, Iowa Farmer.

PAMPHLETS.—Enseignement en Médecine Veterinaire, ce qu'il est, ce qu'il devrait être (Teaching in Veterinary Medicine, what it is and what it ought to be). Twenty-sixth Report to the Maine Board of Agriculture.

COMMUNICATIONS.—A. A. Holcombe, N. H. Paaren, W. H. Pendry, J. A. Nyers, T. E. White, W. R. Howe, Geo. H. Bailey, Julius Gerth, A. J. Murray, Thos. Walley.

AMERICAN VETERINARY REVIEW,

OCTOBER, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 244)

CARTILAGINOUS QUITTOR—*Continued.*

The operation may become complicated by a variety of attendant and accessory *circumstances*. Among these are, the opening of the articular capsules; the wounding of the anterior lateral ligament of the articulation; the ossification of the fibro-cartilage; caries of the os pedis; and the alteration of the coronary band and of the reticular tissue.

The *opening of the articular capsule*, either during the operation, or by ulcerative process, is not so serious an accident as it was originally thought to be. Still, however, it requires some attention. It only become dangerous when the ulceration is accompanied by serious disorganization, and especially when it is associated with purulent arthritis. (Renault, Hurtrel, D'Arboval, Bernard). It is treated by simple pressure, camphorated paste, a little corrosive sublimate mixed with starch, or better, with Egyptiacum ointment.

The *wound of the ligaments* has also been considered a very serious accident, which, according to Girard, cripples an animal permanently. But Lafosse thinks this an exaggerated notion,

and claims to have witnessed the radical recovery of animals after the necrosis and sloughing of the ligament.

If *ossification of the cartilage* is discovered during the operation, the removal of all the unossified portion is first proceeded with, in order to prevent a recurrence of the disease. The extirpation of the osteo cartilaginous portion is then effected either with a small drawing knife, or the gonge, or the bone forceps. The removal is made as far as the ossification is found to be complete, the operator making sure that every portion of cartilage is thoroughly destroyed. If the ossification is but partial or irregular, the surgeon must be guided by the condition of the parts. When the entire cartilage has undergone ossification, its susceptibility to caries has ceased.

When *caries of the os pedis* exists, the part must be destroyed with the sage knife, the gouge, or the chisel, according to the existing conditions. But in this case, portions of the reticular structure require removal, of which, however, as little as possible should be destroyed.

It may happen that the *portion of the coronary band* covering the cartilage may be *destroyed*, either wholly or in part, either as an effect of the disease, or by accident during the operation. In the first case, if the entire band has been destroyed, there is nothing to be done. But in the other case, if any portions of it remain, care must be taken to insure their preservation, as they may supply the necessary elements for a new, healthy secretion of hoof, and the quarter may grow again, more solid and less deformed. If the wound of the coronary band consists merely in a simple division of limited extent, the wisest course will be to attempt to obtain union by immediate adhesion, or first intention, by bringing the edges of the incision together and maintaining the contact by careful dressing. When the *alteration of the reticular tissue* alone, is present, it is very essential to avoid the excision of the injured laminae. It is, in fact, the better course to avoid wholly the use of sharp instruments, and to leave to the natural process of suppuration the removal of the disorganized parts. Renault having observed how their removal interfered with the reparative process, has often left them undisturbed,

even when their dark color and softened condition indicated the smallness of their chance of conservation. The success of the operation after a first dressing, has shown the wisdom of the plan of non-interference; they were found covered with a new layer of yellowish hoof; and D'Arboval has on several occasions observed the same results.

The dressing must be methodically and carefully applied. Done well, a dressing greatly assists in the recovery, while many, when badly performed, have been the cause of serious complications, which have greatly hindered the repairing process, and often, indeed, rendered a disease incurable, which need not to have been beyond remedy. In the application of the dressing, two points are important to consider; first, we must dress the subcutaneous wound, resulting from the separation of the skin and the extraction of the fibro-cartilage; the other, that of the sub-horny wound, produced by the removal of the portion of the quarter. Both are important, but the second requires the greater care, and is more difficult and more important than the former; any excess in the sanguineous circulation must be prevented, and excessive granulations must be kept under control. The dressing, then, must be somewhat compressive, without being excessively rigid, in order to obviate possible danger of excessive inflammation; not too loose and so soft as to allow hemorrhage, or the undue proliferation of granulations. It must be both supple and firm, and of an even and uniform pressure. The proper material is balls of oakum for the subcutaneous wound, and pads of the same material for the sub-horny, the first being moistened with alcohol, while the others are made dry.

It is in question whether we should aim to obtain immediate adhesive union of the wound resulting from the removal of the cartilage, or in other words, whether it is good treatment to introduce some material of dressing between the skin and the bottom of the wound. Here opinions vary. Our belief is, that this union is by no means easy to secure; and that the removal of the cartilage, more or less altered, prevents it at various points. Still, we must not raise the skin too much, and choosing a middle course between, only a small soft ball of oakum is now placed in

the deepest part of the wound, or a thin pad is placed between the two parts, sufficient to represent about the natural form of the part, being enough, however, to prevent the immediate reunion from taking place.

A light thin shoe having been prepared, adapted to assist the application of the dressing and its holding properly, it is put on with one of its branches cut off short on the side where the operation has been performed, while the other branch projects backwards beyond the heel, to support the rollers of the bandage of the dressing. Desplas had thought to turn up that long branch of the shoe in the shape of a hook to assist in holding the dressings. This is generally useless. Some veterinarians prefer to leave the animal unshod, but in that case, the bandage is more likely to slip off. The shoe must be put on while the animal is down, and before the application of the dressing. With some practitioners, that is the moment for the removal of the tourniquet or cord, which had been applied at the beginning of the operation in order to prevent the bleeding. This is an unnecessary precaution, and only renders the application of the dressing more difficult. First, balls of oakum are placed over the coronary band, then, upon the points of union of the preserved wall and of the podophyllous tissue, and then all over the wound. We must endeavor, as Renault says, to give the dressing a cylindrical form, or rather, according to Rey, hemispherical, after which the whole is covered with pads and rollers. These must be put on in abundance, the rollers passing above the branch of the shoe on the sound side, and running successively from above downwards, and generally from before backwards. Flat feet require special care in dressing, and the fore-feet are generally more difficult to dress than the hinder. When all is finished, the animal has to be watched for several days. Ordinarily, after the operation, there is abundant hemorrhage, occurring within some fifteen minutes, and oozing through the dressings. This requires no special attention, and generally ceases spontaneously, or by the pressure of the dressing, or by the use of the cold bath. If the dressing seems to be too tight, and the animal shows signs of acute pain, with strong reactive fever, it is not therefore neces-

sary to remove the dressing, but may be sufficient simply to loosen the bandage. The animal should be placed in a wide stall, or box, if possible, where he may move freely, and lie down easily; and he must be prevented from tearing off the dressing by the application of a neck cradle. A low diet is necessary for several days, in some instances mashes being the only food allowed. Still, a good appetite and lively condition are always good signs.

The interval of time which should be allowed to elapse between the operation and the removal of the first dressing, should be judged by the amount of pain which the animal seems to suffer; by the temperature of the atmosphere; and by the amount of liquid discharge found oozing from the wound and moistening the dressing which covers and protects it. Generally, the dressings should be disturbed as late and as seldom as possible. Circumstances will sometimes occur, however, which necessitate their removal earlier, as for example, the extreme heat of the weather; the extremely offensive odor proceeding from the diseased parts; and a sudden and evident increase of pain in the wound, without any known cause. Under these circumstances, which however, are of rather infrequent occurrence, it is sometimes necessary to remove the dressing as early as the third day, although at this time, as suppuration is not yet well established, the operation is quite painful, and may be accompanied by free hemorrhage. But if the weather is not excessively warm; or if the pain is not excessive; or the dressing remains dry on the outside, and matters seem to be generally in good condition, the better course is to wait from eight to ten days, before the dressing is renewed. Indeed, numerous cases are on record when a still longer period has been allowed to elapse, and the re-dressing has been deferred to the extent of three weeks, or longer. In any event, great caution must be exercised in the removal of the dressings, and the surgeon should be careful to have all his appliances ready in advance, in order that the wound may be exposed to the air for the shortest possible space of time. When exposed, the wound should be of a red color, with commencing granulations, and a temporary hoof, soft and whitish in appear-

ance, should be visible on the podophyllous tissue. A dressing is then applied of tincture of aloes, or a weak solution of iodine. At a later period the dressings are changed at intervals of about eight days, and an application is made of pulverized sulphate of copper, in order to facilitate the drying and hardening of the soft hoof. Baths of sulphate of iron, with a small portion of sulphate of copper, are of service in promoting and hastening the cicatrization.

About the thirtieth or fortieth day after the extirpation of the cartilage, the animal may be put to light work. But three or four months, if not a longer period, must elapse, before it will be safe to task him with heavy labor. Towards the end of the assigned term he should be fitted with a bar shoe, shortened on the side where the quittor has existed. If the dressing is skilfully applied and proper care is exercised, the diseased foot may be sufficiently protected, and the animal made to resume his work with safety.

In time, the portion of hoof secreted by the coronary band unites with that of the podophyllous tissue, and after a few months, no remains of the operation are visible. But if the coronary band has ulcerated; if the skin has been divided; if by contact of the firing iron, or application of caustics, it has been destroyed; the quarter then presents irregularities, and sometimes divisions, which may be of long continuance, and give rise to a lameness which may, perhaps, become permanent. This danger indicates the necessity of exercising the utmost skill and caution in operating, in order to avoid possible injuries to the coronary band.

Several *modifications* of the ordinary mode of operation have been proposed. Some have had for their principal object, the prevention of the extraction of the hoof, with a view of thus returning the animals to their work at the earliest period practicable. It is thus that Hazard, Junior, proposed to make a crucial incision upon the skin covering the fibro-cartilage; the four flaps being so dissected to expose it, and then removing it with the sage knife. In this process, the extirpation of the entire cartilage becomes extremely difficult without inflicting injury upon the lateral ligaments and the synovial capsules.

Pagnier has proposed to merely thin down the quarter, to make an incision in the skin along the superior border of the cartilage, and through this to remove the organ. But in this operation, however thin the hoof may be, it always interferes with the entire extirpation of the cartilage.

Bernard, following the idea of Lafosse, junior, who only removed the superior border of the wall, proposed a mode of proceeding which is principally useful in cases of separation of the hoof. Instead of removing the band of hoof parallel with the coronary bourulet, Bernard pared it down with the drawing-knife, the sage-knife, or the rasp, in order to make it as thin as possible, while avoiding the injury to the sensitive laminae. This done, an incision is made along the coronary band, below it, destroying its union with the laminae. At this step of the operation, the indications are the same as in the ordinary *modus operandi*, except that the coronary band being covered with a certain thickness of hoof, is less flexible. This, however, is easily removed, as soon as it becomes softened. The remaining steps of the operation are the same as in the ordinary, old way. That is to say, the posterior part of the cartilage being well defined, the sage-knife is used in the same manner. In this method, however, as the sage-knife works more flat-wise, there is less danger of wounding the ligaments or the synovial capsules. If any part of the cartilage remains near these organs, some care must be used in removing it, and it must be done by degrees, and in very small portions.

The advantages of this process are, 1st, the avoidance of extensive wounds, and of the extreme pain produced by the extirpation of the quarter. , 2d, to keep the foot shod, and to allow the animal to resume his work as soon as the first pain has subsided, which may occur at quite a considerable interval in advance of the perfect cicatrization of the wound. 3d, to avoid long and frequently-repeated dressings.

In this method, however, the quarter left intact sometimes interferes with the operation, and the excision of the cartilage is more difficult, being only practicable, indeed, in cases where there is a separation of the wall.

Maillet has modified the method of Bernard, so that, instead of thinning down the band of hoof, he only applies the rasp upon the quarter, and thins down with it all that portion which is extirpated in the process of Renault, and availing himself also, of the drawing and sage-knife. The remaining details of the operation are like those of the ordinary processes. An objection to this mode is that it can be put in practice only in cases where there is already a separation of the wall. It is objectionable from its tendency to weaken the foot too much, by interfering with the firm and solid adjustment of the shoe, as well as retarding its application to the hoof.

GLANDERS IN ILLINOIS.

(Reprint from the Report of the Illinois Board of Health.)

(Continued from page 251.)

Clinical History of Four Cases of Glanders, furnished by Dr. R. M. Trumbower, Veterinary Surgeon, Sterling, Ill.

Was requested, on May 31, 1882, by Mr. Joseph Detwiller, residing three miles east of Sterling, Whiteside county, Ill., to call and examine his horses. The following abstracts from case book will explain their condition, &c. :

No. 1.—Bay horse, nine years old, bought of Mr. Harding early in the spring; presented enlargement of the left submaxillary lymphatic glands, and a viscid and purulent discharge from the nostril of the corresponding side.

No. 2.—Bay horse, four years old; swelling along the course of the lymphatics; tumefaction and tenderness of the right side of the cheek, together with considerable enlargement of the submaxillary lymphatics. Does not eat well, and has considerable fever.

No. 3.—Roan mare, seven years old; slight discharge from both nostrils; small nodular circumscribed tumors along the upper lip, on the right side of the nose. No enlargement of the submaxillary lymphatics.

No. 4.—Grey gelding, twelve or fifteen years old; does not eat well; has several small, circumscribed, nodular tumors on the upper lip, and on the side of the face. No enlargement of the submaxillary lymphatics.

Treatment.—Prescribed arsenical tonics and alteratives. On June 3rd, found:

No. 1 had several small glanderous nodules appearing on the nasal septum; losing flesh rapidly.

No. 2 had swelling on the right side of the face, increasing, and several small, circumscribed tumors had made their appearance.

No. 3 had several of the nodular tumors, becoming soft; opened one of them and cauterized the cavities.

No. 4. The tumors on the lip had formed abscesses, which were opened, and more abscesses found in process of formation; the submaxillary lymphatics on the left side now also were somewhat enlarged. The abscesses were cauterized.

Internal treatment continued, and prescribed nasal injection of a weak solution of chloride zinc, to be used on horse No. 1, daily.

On June 5th, all four cases about the same, except No. 1, which now manifested unmistakable symptoms of glanders.

On June 10th No. 1 was ordered to be destroyed, together with his harness, halter, &c., and to be buried; all of which was immediately carried out by the owner.

No. 2. The submaxillary lymphatic glands of the right side enlarged to the size of a hen's egg, very sensitive, no evidence of suppuration: small tumors on the right side had now undergone suppuration and rupture; the latter were cauterized. Prescribed ungt. hydrarg. biniodid. to be applied to the enlarged submaxillary glands.

No. 3. Ulcers presenting a healthy granulation; very slight enlargement of the right submaxillary lymphatic glands.

No. 4. Ulcers doing well; glands about the same as on the third of June.

Visited again on the 14th, 19th and 27th, and found all gradually improving, except No. 2, which I considered so badly

affected by true glanders that I did not want to treat him any longer. The owner requested me to take him to my own stable to treat him; but I refused to do so.

Accompanied by Mr. Detwiller, I saw this horse again on the Conway farm, on the 13th of March, 1883. Mr. Detwiller and myself urged Mr. Conway to kill the horse, upon my statement that he was glandered, and that he could never recover from the disease. The nose, lips and submaxillary space were enormously swollen: the nasal cavities studded over with ulcers, and, owing to the swelling, the horse was unable to eat. Mr. Conway refused to kill him, stating that the swelling was all due to decaying teeth, and that he could yet effect a cure of the horse. At that same time, I also examined two other horses, then on the Conway farm, and informed Mr. Conway and his family that these two horses were infected with glanders, and that if Mr. Conway would not kill them, he should at least keep them in a stable separate from his other horses. He laughed at me, saying, "They have only a slight cold."

One of these horses I condemned on the 2nd of April, and he was shot on the 6th of the same month. The other horse was condemned by Dr. N. H. Paaren on the 13th, and was shot on the 14th of April. The Detwiller horse was shot on the 30th of March, by order of the physicians who attended Mr. Wellington Conway, who meanwhile had become diseased with glanders himself.

Clinical History of Two Fatal Cases of Contagious Glanders (Equinia Glandulosa) in the Human Subject.

BY GEO. W. REMAGE, M.D. of Coleta, Ill.

On Sunday, March 11th, I was called to see George Conway, aged 17 years and 23 days, son of Wellington Conway, a farmer, living about a mile and a half from Coleta, Genesee township, Whiteside County, Ill.

He had considerable fever, complained of headache, and there was a diffused tumefaction on the forehead over the right frontal sinus. His symptoms resembled those of catarrhal fever, and an epidemic of that kind was at that time prevailing in this part of the country.

On March 12th, the symptoms were aggravated ; the swelling of the frontal region had increased. The parents believed that the disease was erysipelas ; but discoloration, &c., as in that disease, were wanting. There was no discharge from the nose.

On March 13th, the case passed into the hands of Robt. McPherson, M.D., who informed me that the swelling of the forehead had increased and extended to the nose, cheeks and lips. The eyelids were also much swollen, and were closed. The glands on the left side of the neck were much swollen.

I saw the boy again on Tuesday, March 20, and found pustules, bullæ and tubercles on various parts of the body and limbs. Gangrene had also set in on the face, cheeks and forehead, which parts seemed completely infiltrated with pus. The tubercles and pustules in some places began to break and discharge ; and a profuse purulent discharge came from the nose. There was also an excessive perspiration of an offensive odor present. Respiration was labored ; the voice was lost ; the action of the heart was rapidly failing. From the beginning the patient preferred to rest in a prone position, and was very restless from pain in the head. About the 20th of March, he preferred a supine position. He seemed to have his full senses, but from the beginning and until the case became very much aggravated, he could speak only in a whisper. About March 20th, coma ensued, and this became gradually more profound, until he passed away on the next day. He was buried on March 22d.

On March 23d, the father, Wellington Conaway, aged 45 years, was taken ill. In fact, the day before, at the burial of his son, he complained of being unwell. Robt. McPherson, M.D., who was called in, diagnosed pleurisy, and treated the case as such until March 30th.

On March 29th, I had an interview with Dr. Taylor, and apprised him of my suspicion that this case was one of glanders ; my belief being based on the fact that several running sores had appeared on the body and limbs of the patient. I saw the case on the 30th, in company with Dr. Segur, a partner of Dr. Taylor. On the 29th, a hard, diffused swelling had appeared over the left eyebrow. The tubercles and pustules which had ap-

peared on the body and limbs, varied in size, some of them being as large as filberts. They were breaking down here and there, and the discharge was purulent, bloody and ichorous on the 30th.

On Sunday, April 1st, Drs. Taylor, McPherson, Freas and Remage met in consultation, and all agreed that the case was one of glanders. On this day the swelling on the forehead had much increased, and an aqueous fluid was sweating out from it. His mind was now wandering, with occasional lucid intervals; the voice was now husky, and the fever had assumed a low typhoid type. He complained of no pain, and said he felt quite comfortable. Up to this time there had been no nasal discharge; the eyelids were not infiltrated, and his eyes stared wide open.

On April 2nd, in the afternoon, dissolution was evidently rapidly approaching; there was now present a copious discharge from the nose of a characteristic purulent, tenacious and sticky or gluey nature. Coma had appeared and was increasing. The excrements were passed involuntarily, and there now was, as in the case of the son, an excessive perspiration, of a very offensive odor; in fact, the most horrible stench pervaded the room occupied by the patient, who died on April 2nd.

It is believed that, by attending in a very ceaseless manner upon his son, the father contracted the disease from him.

Official Statement.

Entered in the Book of Records of the Town Board of Health of Genesee Township, Whiteside County, Illinois.

COLETA, WHITESIDE COUNTY, ILL., April 14, 1883.

The undersigned, N. H. Paaren, M. D., State Veterinarian, representing the STATE BOARD OF HEALTH, by virtue of a special appointment, dated Springfield, Ill., April 11, 1883, by the said BOARD, has this day, after a careful survey and inspection, conducted during the 13th and 14th of the present month, advised the sanitary measures hereinafter stated, to be carried out by the Town Board of Health of Genesee Township, Whiteside County, Illinois; viz:—

1st. That the Town Board of Health cause the dwelling-house occupied by the Conaway family, in the township and

county aforesaid, to be immediately vacated, and a thorough cleansing and disinfection instituted and carried out under the supervision of a physician.

2nd. That five of the horses owned and kept by the Conaway family, be immediately appraised, destroyed and buried deeply in the ground, distant forty rods from the public highway.

3d. That the whole of the stables in which the said five horses were kept, together with the harness, halters and stable utensils, be appraised and burned.

4th. That all of the fencing, together with the fence-posts, for a distance of 400 feet along each side of the public highway, also the fencing around the barn-yard, and all the loose boards and railing, and the watering-trough, be appraised and burned.

5th. That all the hitching-posts and railing on both sides of the streets of the village of Coleta, as well as the hitching-posts and railing adjacent to the churches of said village, be removed forthwith and destroyed.

6th. That six horses remaining on the Conaway farm, besides eight horses owned by neighboring farmers, and three horses owned by three different parties in the village of Coleta, be kept secluded within enclosures, during sixty days, or longer, if found necessary, from date; that the owners be prohibited from selling or otherwise disposing of the same during such period; and that they be examined every tenth day by Dr. M. R. Trumbower, veterinary surgeon, of Sterling, Ill. This for the reason that these animals have been more or less exposed to contagion.

All the above measures have been recommended because of the existence of glanders among the horses owned by the late Wellington Conaway, who, together with his son George Conaway, died from glanders or true *equinia*.

N. H. PAAREN, M.D.,
State Veterinarian.

In conclusion, I may further state that, while glanders and farcy may hereafter develop in some of the animals, now kept secluded under surveillance, in Genesee Township, and thus continue to be a source of contamination to both man and beast,—this township is not the only one in which the said disease at present ex-

ists. Immediately outside the limits of the township are said to be fourteen horses, kept by one owner, and which are said to be all very similarly affected, and may possibly prove to be another center of contagion. Whether these animals have contracted the disease from contact with glandered horses in this township, or elsewhere in this county, I am not prepared to state; but during my brief sojourn at Sterling my attention was called to a horse, which I examined and found affected with glanders.

I am in frequent receipt of letters and telegrams from various parts of the State, referring to the existence of glanders among horses; and the following two letters, just received, would seem to indicate the existence of a formidable scourge in that locality: viz:—

DU QUOIN, ILL., April 18, 1883.

N. H. PAAREN, M. D., State Veterinarian:

SIR:—There is a disease among horses in this county, creating quite an alarm among the people. Some judges pronounce it glanders.

Will you please come down and look after the matter? Come to Du Quoin, and you will be taken out from there. Please let me know by return mail what you will do, and when you will come.

Yours truly,

A. J. BROWN.

Two others have been received from the same locality, and also a telegram. The following letter has just been received from the Governor's office in Springfield, together with a communication from the private secretary of the Governor, saying that "if you can do so, the Governor thinks you had better go at once to Perry County." But what is the use of my going? I have no authority whatever to do anything there, because our present laws have no reference to horses. If it be glanders, raging at that rate, it may not be long before the loss of more human lives will be reported.

DU QUOIN, ILL., April 18, 1883.

GOVERNOR HAMILTON, SPRINGFIELD, ILL.,

DEAR SIR:—There is now on Paradise Prairie, in this county, a disease among horses creating quite an alarm among the peo-

ple. The disease is quite contagious, and should be looked after at once. Parties have written and telegraphed Paaren, Veterinarian, and can't hear from him. This matter is of great importance, and should be investigated and stopped at once.

Can't you have the Veterinarian come here at once and look into the matter. The people are very much alarmed, and if the matter is not investigated at once it will spread with disastrous results. It is already spreading. Please send Paaren here at once.

Yours truly,

H. W. S. WHEATLEY.

No doubt can exist of the necessity for prompt legislative action in regard to contagious disease among domestic animals: and it would almost seem proper that the medical authorities of this State, take the matter in hand *without delay*, to make it possible to accomplish anything through the present session of our Legislature. Trade and traffic of such diseased animals should be peremptorily prohibited, as by this source, together with the use of such animals on public highways, and by-ways, and in the towns and cities of the State, the disease is now continually spreading. When a man becomes convinced that his horses are affected with this loathsome and positively incurable disease, he will endeavor to recover as much as possible of their value, by trading and selling the same to unsuspecting and ignorant parties, who will bring them to other places, where perhaps no such disease is known. Thus there exists in this State, one of the most malignant and contagious diseases known, and with that a constant source of menace and danger to human life.

Hoping that the proceedings as stated in my present report will meet with the approval of the STATE BOARD OF HEALTH, I remain,

Your obedient servant,

N. H. PAAREN, M. D.

State Veterinarian.

The members are doubtless aware that, as a direct outcome of these investigations and of the efforts made under the authority of the BOARD, the so-called "Pleuro-Pneumonia Act" has been so amended by the General Assembly, just adjourned, as to make its provisions apply also to glanders; and the State Vete-

rinarian is now clothed with authority and has a sufficient appropriation to deal with this disease.

It may also be mentioned that a death occurred in St. Louis last month from this malady—the victim being a street-car driver said to have lately gone thither from some place in this State.

(To be continued.)

MELANOTIC TUMOR IN THE CÆCUM.

BY R. H. HARRISON, D.V.S.

This subject was a brown gelding, eighteen years old, sixteen and one-half hands high, and weighing 1,480 pounds. He first came under observation several months before, suffering from a large incised wound of the breast; had been owned by a lumber firm for twelve years, and not esteemed a good worker and feeder.

After recovery from this accident he was sold and lost sight of until March 17th, when he was exposed for sale at auction.

Late in the afternoon was requested to visit him, and found him prostrate, gasping for breath, with an almost imperceptible pulse. No treatment was advised. He died a few minutes afterwards without a struggle.

The previous history, as near as could be ascertained, was that he had been driven 18 miles rapidly in the morning. Refused his dinner, and early in the afternoon, showed great distress, manifested by severe colics, getting up and down, pawing, etc.

A post-mortem examination was made the next day, and the following lesions were observed: Rigor mortis was well marked, and the animal was in good flesh.

Thorax.—The lungs were healthy, except along the inferior border, where emphysema was present. The heart was hypertrophied at the expense of its walls. It was fatty and the muscular structure was easily torn. Its weight when emptied of clotted blood was five and one-half pounds. The walls of the left ventricle were a quarter of an inch thick, and of the right, one

sixteenth of an inch thick, rendering the ventricular cavities much larger than normal.

Abdomen.—The liver and spleen were very fatty, paler than normal, and their tissue easily torn. The kidneys were fatty and showed on their superior face a number of ecchymotic spots. The bladder was healthy and contained a pint of healthy urine.

The small intestines and stomach were normal. The large intestines contained fœcal matter colored black. The large mesenteric veins throughout were enormously distended with blood.

At the apex of the cœcum, a large growth was found, which proved to be a melanotic tumor undergoing degeneration. Its weight was four pounds. It was irregularly rounded, and by its size and position destroyed the outline of the apex. The ingesta was colored black, as well as the contents of the small colon.

The other organs and tissues were carefully examined, but no melanotic deposit could be found.

By inquiring of the original owner, it was learned that at times for the last six years this animal was noticed to pass black fæces.

Death was due in all probability to an interference in the abdominal circulation.

COMPLETE RUPTURE OF THE INFERIOR SESAMOID LIGAMENTS.

BY W. H. PENDRY.

On August 20th I was called to see a black horse about fifteen years old, driven by its owner to a cab, said to be lame in the near hind leg. The history of the case appeared to be as follows :

About five weeks previous, while being driven at an easy gait, a butcher's cart suddenly crossed in front and caused the horse to be thrown. On getting up he went somewhat lame; was taken home and given nearly five weeks rest. As the lameness appeared to have disappeared, he was put to work, being driven

about the city all day. On the following day, when about half the way home, on a trip of about five miles, he suddenly lifted his foot as if he had picked up a nail, which was at once searched for, but nothing found. The horse suffered great pain, so much so that he was with difficulty raised and got to the stable. On my arrival there, I found the horse in a loose box, resting his hindquarters against the side, thus entirely relieving the injured limb from any weight, and resisting any attempt made to move him from that position.

The ocular examination gave little or no satisfaction, on account of the bad light and the abundance of straw. I passed my hand down the leg, and when I reached the fetlock he flinched on the slightest pressure. Manipulation around those parts appeared to give considerable pain, and so I at once came to the conclusion that the trouble was there. However, on reflection, I considered the history demanded an examination per rectum, which I made, but found nothing abnormal.

I again examined the fetlock, and made a diagnosis of breaking down of the tendons of that region. I advised no treatment but stated that I would call on the following day, when I would advise him definitely what to do, giving him then to understand that the case was a very bad one, apparently hopeless, and that I might order the animal to be destroyed.

Considering that I had an interesting case, and wishing to give the owner all the advantage possible (it being his only means of earning a living), I consulted with Dr. Kemp, who visited the case with me the following day. On our arrival, we found the horse down, and unable to get up. I had him pulled out upon the floor of the stable, and turned over on his off side. Dr. Kemp then made a careful examination of the foot, and gave it as his opinion, that there was a breaking-down, with a possible complication of a fracture of the os coronæ, as he thought he could hear and feel some slight crepitation, although he stated it might be the result of an effusion into the joint.

On manipulation I could neither hear nor feel this to my satisfaction, but I could extend the fetlock joint to an angle that at once denoted a giving away of some of the tendons, and I

thought, possibly, that of the superficial flexor, as I could feel on rotating the foot, that the deep one appeared all right.

The owner was advised to have the animal destroyed, which was done, and the lower part of the leg secured for dissection, and, as arranged, left it at Dr. Kemp's office, stating I would return, but before I could do so, I found his anxiety had saved me the trouble, so that I have to give the result of the post-mortem in his own notes, taken at the time, which are as follows:

"Upon examination of the foot of the black horse, I find the trouble due to a separation of the glenoidal fibro-cartilage, which completes the superior articular surface of the os coronæ posteriorly, from its point of attachment to that bone. It is completely torn away from its place of insertion, and has taken with it the periosteum and superficial layer of the bone, leaving the cancellated structure exposed.

As this fibro-cartilage serves as a means of attachment to the superior superficial sesamoid ligament, and also acts itself as a powerful posterior ligament, sending several fibrous bands to the first phalanx, the severity of the injury is apparent. The synovial bursæ of the joint are much distended, and contain a large amount of bloody synovia." It will be seen that he makes no mention as to how he found the inferior attachment of the superficial flexor, but when I made enquiry on this point, he stated he could not remember. On looking at the specimen before me, I feel there was a possibility of its having given way.

OBSTRUCTION OF STERNO'S DUCT—OPERATION—RECOVERY.

By WM. R. HOWE, V.S.

On the 20th of May I was called by a veterinary practitioner of this city to see a case which he said bothered him. I found a grey mare about seven years old with right parotid gland somewhat enlarged, and the duct of Steno, from the gland down, much enlarged. Where it rounded the angle of the jaw, it formed a dependent sac, but from there to what should be the outlet, no enlargement. After considerable manipulation I

diagnosed obstruction of the duct. To prove my diagnosis I punctured the most dependent part of the sac with a small trocar and obtained a small quantity of saliva. This, of course, relieved it. I recommended an operation, but the owner objected to it. I then recommended hot fomentations followed by mild stimulating liniment. This did no good, and on the 3d of June I was called again and found the part severely blistered. I again punctured, and again recommended an operation, but the owner said he would wait.

On the 6th of June, they decided to have an operation performed. After preparation by the administration of chloral hydrate \mathfrak{z} jss. the mare was cast on the left side with the head somewhat elevated. After clipping the hair from the part a clean cut was made on outside of jaw, parallel with the duct, and reaching the highest part of the enlargement. In so doing it was found that the artery lay right in the way, so the cut was extended one inch lower down, exposing the enlarged duct. I now made a small incision longitudinally into the duct, and after allowing the imprisoned saliva to escape, I introduced a blunt probe, and, with one hand in the mouth (using a mouth speculum), worked the probe up the course of the duct until within half an inch of the papilla or natural opening. I could work it no further, so withdrawing it I substituted a long silver needle (which was made for this operation), armed with No. 4 carbolized catgut, and gently passing it through the duct as far as the channel was open, then through the muscle, in as near as possible the course of the duct, brought it out just anterior to the original opening.

Then by grasping the point with a strong pair of forceps and allowing my assistant to pull while I held my finger to the opening, allowing the flexible needle to slip over my finger like a rope over a pulley, in order to prevent laceration, the gut was brought out at the angle of the mouth and the two ends tied, thus forming a seton. This was kept in three days. The mare several times bit the gut in two and rubbed it out, but it was soon replaced by arming the same needle and passing it through, eye first, and grasping the seton from the mouth, and then withdrawing the needle. This was done without casting.

All this time the secretion was passing out of the external opening. Twenty-four hours after removing the seton, I tried the duct by forcing water through with a syringe, and found it clear. Had no trouble in closing the external opening.

Ten days after the operation, the mare went to work and has been well and hearty ever since. There is a slight enlargement of the dependant part of the duct and some scar from the blisters, but otherwise the mare is as sound as ever.

I cannot give any cause for the trouble. There was no calculus, and had been no swelling of the obstructed or obliterated part of the duct. I was assisted very much in the operation by Dr. Gable, M.D., who, I am glad to say, takes a hearty interest in veterinary matters.

P. S.—Since writing the above the enlargement has all passed away.

EDITORIAL.

VETERINARY COLLEGES IN THE UNITED STATES.

By the time the present number of the REVIEW reaches its readers, the different Veterinary Colleges throughout the United States will have opened their session of 1883-4.

It is certainly very gratifying to every veterinarian, every stockholder, every humanitarian, to know that veterinary science is so much more advanced in our midst than it was but a few years ago. We see now institutions like the *American Veterinary College* on a firm and lasting basis, having passed its infancy, its boyhood, indeed, and is now entering upon the good work of its manhood: its classes increasing yearly, and the methods of instruction, practical as well as theoretical, annually improved.

Its teachers, from long work and great experience, now study not how to conduct a college to secure a class, but only how to make more thorough the teaching to a class already too large for the building now occupied.

Other ventures are being made to establish similar schools, one in Pennsylvania, another in Massachusetts, among the rest.

Here the first things necessary are to secure the services of veterinarians of acknowledged ability, and men possessing executive and business qualities. These schools seem thus starting in the right direction, and we extend to them, in fact, to *all* honest and conscientious attempts, the right hand of fellowship, our best wishes, and whatever assistance our experience can give.

There is plenty of room for all these institutions, and it is to be hoped that they may one and all see the propriety of making a uniform course of three years' study, appointing a common examining board, graduating only men of ability, and not prostitute our noble profession by endeavoring simply to turn out each more abortions than the other. Let the *diplomas* from all our colleges be recognized as the proof of the learning and skill of their holders, and not monuments to the greed, cupidity and selfishness of "rival schools."

FOURTH INTERNATIONAL VETERINARY CONGRESS.

The fourth International Veterinary Congress was held in the Palais des Academies at Brussels, on the 10th of September. A large number of veterinarians from various parts of Europe and from America were present. Through a courteous invitation of the Secretary of the Committee of Organization, Prof. Wehenkel, the members present met on the Sunday previous at the Grand Hotel, where a most friendly entertainment took place, giving to every one present the opportunity of making each other's acquaintance.

On the day of meeting, in the absence of the Minister of the Interior, Mr. Somerhausen, General Director of the Department, presided at the organization and opening of the congress, while many of the celebrities of veterinary medicine were present.

On the first day the Constitution of the Congress was discussed and the various officers elected, Prof. Thiernesse being unanimously selected president. The other officers consisted of five vice-presidents, a general secretary, and five adjuncts, corresponding to the number of subjects to be discussed.

The various questions brought before the Congress were :

1st. *The organization of the Veterinary Service*, with a committee composed of Messrs. Eraers, of St. Frond, Lavallard, of Paris, Zundel, of Strasbourngh; the latter gentleman being reporter.

2d.—*Contagious Pleuro-pneumonia of Bovines*—The committee upon that question was composed of Messrs. Prof. Degive, of Brussels, LeBlanc of Paris, Prof. Putz of Halle.

3rd.—*Veterinary Education*. This important subject was left in the hands of Mess. Hugues, of Brussels, Prof. Muller, of Berlin, and Director Wurtz, of Utrecht.

4th.—The question of *Pulmonary Phthisis* was entrusted to a committee composed of Messrs. G. Fleming of London, Lydtin of Bade, and Van Hertsen of Brussels.

A fifth question—upon the French law prohibiting veterinarians selling drugs for animals placed under their care—closed the discussion.

The meeting proved a most successful and pleasant one, where so many men of different countries, of different habits and speaking different languages could gather together and come to work harmoniously for one object in view—the advancement and usefulness of the veterinary profession.

To Prof. Wehenkel a great part of this success is due, not only in the efforts which he must have made in bringing so many gentlemen together, but in the excellent manner in which everything was carried out, from the serious subject of discussion to the agreeable opportunities that was offered to the members of the Congress to visit and enjoy the beauties of that hospitable city and its surroundings.

In subsequent numbers, the questions proposed in such discussion will be presented to our readers, time and space not allowing it at present.

GOOD NEWS FOR VETERINARY STUDENTS.—At a recent meeting of the Council of the Royal College of Veterinary Surgeons, Professor Walley succeeded in carrying a motion* to the effect that holders of foreign and colonial diplomas should not be called upon to undergo an ex-

amination in the subjects of the first and second examinations for the diploma, and that they should be eligible for the third (final) examination after studying for one winter and one summer session in any British veterinary college—the only proviso being that the time spent in obtaining the foreign or colonial diploma be equal to that usually spent in studying for the subjects of the first and second examinations in British schools, i. e., two winter sessions of twenty-two weeks and one summer of eight weeks duration.

HOSPITAL RECORDS.

REMOVAL OF THE LATERAL CARTILAGE IN TWO CASES OF QUITTOR.

By W. D. CRITCHERSON, D.V.S., House Surgeon Amer. Vet. Col. Hospital.

This operation was first performed by Lafosse, in 1750. At the present time, with but few exceptions, it is only employed after all other means of treatment have failed. But it is rapidly gaining favor with the profession, and will undoubtedly soon receive from the educated veterinarian the attention which it so justly merits.

“It is essential to avoid injury to the coronary band, the podophyllous tissue, the lateral ligament, and the synovial capsule of the articulation.” The two operations which I have to record will illustrate the benefit derived—in one a chronic case, in the other, a case which was the result of a suppurative corn. In both, complications arose. In the first they were slight, while in the second case they were more serious.

CASE No. 1.—A gray mare, eight years of age, fifteen hands, one and one-half inches in height, and weighing about 1150 pounds.

This animal was brought to the hospital on the 16th of May, very lame on the near fore leg. Upon examination (the shoe had been removed) found an enlargement the size of a man's closed hand, situated on the outside of the coronet, in the region of the cartilage which limits the lateral and posterior portion of

the foot substance. There was a slight discharge from a granulating surface the size of a twenty-five cent piece, situated over the middle of the cartilage, and just above the coronary band. Upon introducing a probe, a fistulous track was discovered, leading downward, inward and forward, to the external surface of the cartilage.

History.—Had been suffering with the present condition for several months. Had been treated by a non-professional man with caustics, etc. He had also blistered the off fore coronet, so the owner said, "to make the animal stand upon the lame foot." The wall, bar and sole, at their point of union, had been pared down.

Diagnosis.—Cartilaginous quittor.

As the owner was desirous to have the animal treated, the operation for removal of the cartilage was advised, with the anticipation of the removal of the lameness, but the possibility of a return of mechanical lameness from increase of bony growth, following the operation. The day following, the owner notified Dr. Liantard to perform the operation without further delay. It was decided to operate on the 18th, at 2 P. M. Accordingly the animal was prepared for casting, which consisted in feeding only sloppy bran mashes through the day, with a small feed on the morning of the 18th, soaking of the foot in water, and no dinner. At 1 o'clock gave chloral $\frac{3}{4}$ i., and at 2 o'clock she was led out of her stall very lame.

Was blindfolded and cast upon the right side. The near fore leg was then removed from the hobble, and secured on top of the near hind leg, about midway of the metatarsal region. A stout cord was then secured around the leg, below the metacarpo-phalangeal articulation, in order to lessen the hemorrhage which would necessarily accompany the operation. The hair was then clipped, and a probe inserted into the fistulous track inward, downward and forward, for about one and one-half inches, when it reached the cartilage. With drawing knives, a triangular section of the wall was pared down very thin, extending obliquely backward and downward, from the anterior portion of the cartilage to the solar surface of the wall in front of its junction with

the bar. A double-edged sage knife was then used to make a superficial incision about one-quarter of an inch below the coronary band, extending from the posterior portion of the cartilage at the heel forward, thus preserving the coronary band intact, and preventing the possibility of a quarter crack following the operation. The same instrument was then inserted at the middle of the incision, with the point turned inward; and, while being carefully guarded by the hand, in order that the skin covering the parts might not be injured during the struggles of the animal, it was moved forward, backward and upward. The tissues covering the parts being thus divided, a right-hand sage knife was then introduced, and its edge carried upward till it reached the upper border of the cartilage. Then, by turning the blade over the cartilage, with its cutting edge directed outward, the point of the instrument being brought out first, the entire posterior portion of the cartilage was removed. The remaining portion was removed in the same manner. (The entire cartilage was undergoing ossification). This was followed by a slight amount of hemorrhage.

There was then discovered, upon introducing the probe, a track, commencing at the anterior third of the base of the cartilage, and extending downward, between the folds of the podophylous lamina, to the lateral surface of the os pedis, which could be felt as a roughened surface under the probe. The congested and infiltrated lamina was cut away, exposing a piece of gangrenous tissue the size of a pea. This being removed, the roughened surface of the bone, due to the extension of the inflammatory process which had been going on in the cartilage, was observed. The bone was scraped, and a smooth surface of all the tissues involved having been obtained, the wound was dressed with carbolic solution (1 to 40) and oakum. A bandage with moderate pressure was applied, and over all a piece of sacking. The cord was then removed from the fetlock, also the hobbles, and the animal allowed to get up. She walked to the stall better than when led out for the operation. The foot was immediately placed in water, and remained in soak till the next morning.

May 19th, 8 o'clock, A. M. There is slight reacting fever.

Temperature, $101\frac{3}{4}^{\circ}$ Fah.; pulse, 66. Is quite lame. Carbolized spray was used while the wound was being dressed. With the exception of a small piece of lamina at the anterior margin, the wound looks well. Was kept in soak during the day. Ate four quarts of oats and some clover. Towards night manifested considerable pain. Temperature, $103\frac{1}{2}^{\circ}$; pulse, 72; respiration, 42. Gave tr. opii, $\bar{3}$ ii., and put her in a box stall, where she soon laid down, and remained quiet during the night.

20th. Temperature, $102\ 3-5^{\circ}$; pulse, 72. Lameness about the same as yesterday. Appetite not as good. Remains down most of the time. Shall not dress wound to-day.

At 6 o'clock, P. M. Temperature, 102° ; pulse, 70.

21st. Temperature, 102 ; pulse, 70; respiration increased. Is not as lame as yesterday. Dressed with the spray. Wound looks well. Ate six quarts of oats during the day.

22d. Temperature, $101\frac{1}{2}^{\circ}$; pulse, 54. Dressing not to be disturbed.

23d. Temperature, 101° ; pulse, 48. Walks well. Dressed with spray. Wound looks well, but the discharge is slightly sanious. Appetite good.

25th. Temperature, $100\frac{1}{2}^{\circ}$; pulse, 45; respiration, 20. Wound dressed. There is a small piece of bone in the region of the basilar process, which is slowly sloughing.

26th. Slight febrile reaction, probably due to the irritation caused by dressing yesterday.

28th. Condition normal. The granulations look flabby and slightly unhealthy. The piece of bone, which was sloughing, was removed, and the wound dressed as before.

29th. Granulations are of a dark, venous red color. They are dressed with carbolized tr. aloes. Cicatricial tissue is rapidly being formed, and the wound is at least one-third smaller and, with the exception of a small track at the anterior margin, is doing well.

30th and 31st. There is a slight synovial discharge from the fistulous track, with a tendency to the formation of pus. Villates' solution injected, and the same carbolized dressing employed daily until the 9th of June. Then the wound was dressed

every other day. There was a slow but steady improvement up to the 18th. Then the shoes were put on, and the animal sent home, with orders for her to be sent back every second day to be dressed. At this time the track was not entirely closed, but the wound was granulating nicely.

The owner neglected to send her back as directed, the track closed up, and pus formed at the anterior portion of the coronary band. This was evacuated, and by careful attention and dressing for a few days, the track began to close up, and on the 23d of July all dressing was removed, and the case discharged, with no further treatment than to apply a little hoof ointment occasionally. Although there is an enlargement around the coronet, there is no lameness, and the animal is at present performing its work with no return of lameness.

CASE No. 2.—This was a bay mare 9 years of age, 16 hands 3 in. in height and weighing about 1500 lbs. Was first brought to the hospital in February. At this time she was very lame on the near fore leg, with an abundant discharge from a granulating wound situated in the region of the external lateral cartilage. Introducing a probe a track was discovered, leading downward and inward to the surface of the os pedis.

History.—During the winter she had a corn, which was neglected. Suppuration ensued and made its way out at the point mentioned. *Diagnosis*, cartilaginous quittor, with necrosis of the os pedis.

Injections of Villate's solution was recommended, and adopted, but no improvement. Iodo phenol was then given a trial, and under this treatment the discharge diminished and the lameness was removed to such an extent that the animal was put to work. But the relief was only temporary; the lameness returning and the discharge increasing.

Other caustics were then introduced into the track. Among them were crystals of carbolic acid and hydrate of potassium. No relief being afforded an operation was advised, and on the 5th of June she was brought to the hospital for that purpose. The shoes were removed and the feet poulticed and on the 8th at 12 o'clock, after being thoroughly prepared, she received chloral

3 iss. A little before 2 o'clock she was cast and secured, the *modus operandi* adopted being the same as in Case No. 1. The entire cartilage was diseased, and was removed, as well as two pieces of necrosed bone. An antiseptic dressing of oakum, saturated with carbolic acid solution, was then applied. During the operation, the animal struggled but very little, and during the dressing, and even after the hobbles were removed, she lay perfectly quiet, seemingly in a profound sleep, with eyes half closed, the muscles of the extremities relaxed and the breathing stertorous. The effect of the chloral was thus well manifested, the maximum effect of the drug in this case, as well as in several others which have been noted, being obtained in about two hours after the administration. In a few minutes she got up with very little assistance and the foot was at once placed in water.

June 9th.—Lameness, about the same as before the operation. Eating well and no reacting fever. Dressing not to be disturbed.

10th.—Dressed, with spray of carbolic acid solution applied. No suppuration.

11th.—Quite lame—anorexia. Temperature $101\frac{1}{2}^{\circ}$ Dressed with moderate pressure. The granulations are protruding at and around the margin of wound; being flabby and of a dark red color.

12th.—Lame and in some pain. Considerable amount of pus. Dressed with pressure from above to keep the granulations down. Gave tr. opii 3 ii.

13th and 14th.—The wound is doing well with the exception of a slight synovial discharge.

15th.—The synovial discharge still continues. There is also a track running downward and forward for about two inches. Villate's solution was injected. The lameness seems to be increasing. The wall below the coronary band was pared down in order to apply even pressure, and prevent the formation of a false quarter.

From this time up to the 21st there was gradual improvement, the synovia being stopped and the granulations becoming healthy in appearance. Walks with but very little lameness. As abrasions on her hips and sides were being formed she was kept tied up during the day.

From the 21st up to July 4th the wound was dressed every other day, Villate's solution being injected into the track, which remains about the same. Lameness increasing.

July 9th.—A piece of lateral ligament which has been slowly sloughing is removed.

July 24th.—The usual dressing has been continued all this time. The track now begins to close up and the wound is healing nicely. Lameness a trifle less. The walls of all four feet are rasped down.

31st.—The dressing is now removed and the wall below the coronary band thinned down, hoof unguent being applied to the parts.

Aug. 1st.—An astringent lotion is applied to a small tumor which has been formed on the elbow.

Aug. 3rd.—The shoes are put on, walks quite well.

Aug. 5th.—The tumor is opened and a tent of oakum coated with *a a* basilicon and populum unguent inserted, to induce supuration.

Aug. 10.—Tumor healing. Patient discharged. Is not lame when walking but is when trotting, due to the formation of a ringbone, which will probably yield to treatment. Had the complications been less serious I think that the result would have been more satisfactory.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The twenty-first annual meeting of this Association was held Sept. 18th, 1883, at the American Veterinary College. In the absence of the President, Vice-President Dr. L. McLean presided. The session of Comitia Minora was a short one, the only business coming before that body being the examination of credentials of candidates for admission to membership.

The regular session was called about one p. m., Dr. L. McLean again in the chair. Twenty members answered the roll-call. The order of business was changed to admit the following

newly-elected members : Drs. F. W. Huntington, W. H. Hoskins, R. Kay, W. C. Bretherton, W. D. Critcherson, Austin Peters, Dr. Cotton, E. A. McClellan, B. D. Pierce, F. E. Rice, Jos. Skally, C. T. Gaentner, Alex. Glass, J. C. Gardner, W. H. Pendry, Franklin J. Hanshew.

Drs. Huidekoper, of Philadelphia, and Burns, of Brooklyn, were present as visitors to the Association.

The committee appointed to investigate the value of the Pasteur method of inoculation not being present, the Association directed that their report be received at the semi-annual meeting in March.

The President thought it prudent to extend somewhat the labors of this committee, stating that it seemed almost unnecessary to investigate the Pasteur method, since it is so generally admitted that this is entirely successful.

The regular committees made no report. The Treasurer's report was read and adopted.

The following gentlemen made application for membership :— Drs. Theo. Outerbridge, Geo. H. Burns, W. H. Arrowsmith, H. W. Bath, E. Burket, V. L. James and R. S. Huidekoper.

Election of officers being next in order, the following gentlemen were elected for the ensuing year :—President, W. B. E. Miller ; Vice-President, W. J. Coates ; Treasurer, Chas Burden ; Secretary, Ch. B. Michener.

Dr. McLean, on leaving the chair, made a few well chosen remarks, as did also the newly elected President, Dr. Miller.

The following Board of Censors was then chosen : Drs. A. F. Liautard, L. McLean, Jas. L. Robertson, W. H. Hoskins, A. Lockhart and J. H. Stickney. The President appointed the following committees : *Library Committee*—G. P. Penniman, R. Kay. *Prize Committee*—L. McLean, A. Lockhart, E. Hanshew. *Intelligence and Education Committee*—W. J. Coates, J. Winchester, W. H. Hoskins. *Diseases Committee*—A. F. Liautard, C. P. Lyman, Jos. C. Bushman.

After considerable discussion, pro and con, the society, by vote called the attention of Comitia Minora to the advisability of holding the future annual meetings at some other than the usual

place. Dr. Robt. Harsison reported a case in which he performed the Cæsarian operation on a cow, saving the lives of both cow and calf. The proper time to administer ergot was discussed, as was also whether or not to suture the uterus. Dr. L. McLean thought it strange that the temperature in this case had not risen higher than 103° Far.

Dr. J. Gerth, jr., favored the Association with a report of the recent outbreak of glanders in Newark, N. J., in which he censured the State Board of Health for not taking some steps to eradicate or quarantine the disease. The local Board of Health took the matter in charge and is rapidly getting rid of the disease. A profitable discussion followed on the subject of glanders, and particularly as to its latent form.

Contagious pleuro-pneumonia came up for its share of attention, and during the discussion inoculation was the principal theme, the different methods, manner of preserving virus, etc., being discussed by most of the members present.

After some remarks concerning septic and zymotic diseases the Association adjourned.

CH. B. MICHENER, Sec'y.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of the above society was held at the Union Hall, State Fair Grounds, Columbus, at two p. m. on the 5th inst. The President W. C. Fair, V.S., Cleveland, occupied the chair.

Prof. Townsend, State University, Columbus, and J. Hawkins, V.S., Detroit, Mich., President Michigan State Veterinary Association, were present.

The President called the meeting to order (and not being present at the previous meeting and organization of the society) stated his views fully as regards the objects, etc., of the society, which were heartily approved by all present. The minutes of the previous meeting were then read and confirmed.

The roll was called and the following gentlemen answered to their names:

Fair, Newton, Cotton, Moore, Waddel, Hillock, Chase, Butler, Derr, Wight, Labrou, Meyer, Howe, Crane, Groff, Blanchard, Charlesworth, Huntsberger, Stuart, Jeannin, Spidell.

Several applications for membership were then presented, which were referred to the committee on credentials.

The general business of the meeting was transacted, after which quite a lively discussion followed on diseases of the teeth, etc., by Drs. Cotton, Howe, Fair, Newton, Hillock and others. Dr. Cotton volunteered a paper for the next meeting on veterinary dentistry, etc.

Dr. Hawkins, President Michigan State Veterinary Medical Association, was then elected an honorary member of the Ohio State Veterinary Medical Association, and responded in a few well chosen remarks, thanking the society for the honor conferred upon him and closing with a cordial invitation to any or all to attend the second meeting of the Michigan State Veterinary Medical Association, which was to take place at Detroit a few days later.

Prof. Townsend was then called upon, but owing to the lateness of the hour declined making anything like a speech.

The society, after having spent a pleasant afternoon and a very interesting meeting, adjourned to meet again in Cleveland on the second Tuesday in January, 1884.

J. S. BUTLER, Cor. Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Keystone Veterinary Medical Association was held Sept. 1st, 1883. The Vice Pres., Dr. Zuill, called the meeting to order

The minutes of the last meeting were read and approved.

From the committees came encouraging news, and an early recognition of our schools by the Jefferson Medical College is now looked for.

Dr. W. H. Hoskins proposed the names of Drs. R. S. Huidekoper and L. C. Campbell as members, which were received to be balloted for at the next meeting.

The essayist for the meeting was Dr. T. B. Rogers, his subject "Colic." This he handled with remarkable force and great minuteness. His points of differential diagnosis were many and very closely followed by the members. In colic, he said the head was turned to the sides; while in volvulus or intussusception it seemed to note a fixed point. Sweating in colic, he said, began at the regular points. The use of morphia he did not consider good, on account of it checking the peristaltic action of the bowels, and retarding the emptying of the same. From practical experience he found walking the cases of great service. In strangulation of a part of the bowel, the pulse was weak, sometimes intermittent, the animal gets down carefully; the hind legs are brought under him, and the fore limbs are bent at the knees and morphia does not relieve the pain. Many other important points were brought out, and in his means of diagnosis, he likewise showed an extensive and largely varied treatment. His success in these cases was quite remarkable.

Dr. A. Glass reported a case of pharyngitis, possibly complicated with a post-pharyngeal abscess.

After a vote of thanks being accorded the essayist, and the appointment of Dr. W. B. Miller as essayist for the next meeting, the hour for adjournment had come.

W. HORACE HOSKINS, Secretary.

PENNSYLVANIA VETERINARY MEDICAL ASSOCIATION.

The convention of veterinary surgeons of Pennsylvania, held at Philadelphia on Aug. 22nd, was opened by prayer by the Rev. Samuel Miller.

Dr. Jas. McCoart was then elected Chairman. Calling upon Mr. Daniels of the *Chicago Veterinary Journal*, he spoke of the work of conventions in the other States and what was hoped for from Pennsylvania. The necessity of wiping out quackery and the fact that \$119,000,000 worth of stock were still in the hands of empirics, he thought indicated that the time had come for legislation. Mr. Daniels was then appointed Secretary pro tem.

A call was then made for a committee on business, and the

society instructed the chair to appoint. The following members were asked to act on the same: Drs. Hooker, T. B. Raynor, Reinhart, John Berry, Sr., and Zuill.

The chair was also asked to appoint a committee on credentials and the following members were appointed: Chairman, Dr. W. Horace Hoskins; other members, Drs. G. B. Raynor, R. Gladfelter, Chas. Schaufler and J. W. Sallade.

The convention then took a recess until 2 p. m., when the committees would report.

At 2:15 the convention reassembled, and the Committee on Credentials rendered the following report.

1.—All members of recognized veterinary colleges, or of medical colleges, or who are present in person or letter, at this convention, and who have been in active practice for five consecutive years, may become members of this Association.

2.—After this date all applicants who have been in practice for ten years, may become members by answering a list of questions in veterinary medicine and surgery before the Board of Censors.

The committee's report was then received and a recess of fifteen minutes granted it, that all present might pass before them, in order to know the members, before proceeding to the election of permanent officers. Four men were rejected, as follows: Drs. Van Deveer, Hanly and Saulsbury, because they were from the State of Delaware, as the committee deemed it wise to draw the line strictly within the State of Pennsylvania. Dr. J. G. Post was rejected, because he had not been in active practice for five consecutive years. The report was accepted and the members elected by acclamation.

The Committee on General Business reported the by laws and named the following offices to be filled: President, three Vice Presidents; Recording Secretary; Treasurer and five Censors, to be elected for one year.

The election for officers resulted in the choice of Dr. J. W. Sallade of Reading, for President. For Vice Presidents, Drs. J. B. Raynor, Chas. Schaufler and Chas. J. Goentner. For Recording Secretary, Dr. R. Gladfelter, and for Corresponding Secretary, Dr. Alex. Glass.

The Board of Censors were then chosen, as follows: Drs. W. Horace Hoskins, Geo. B. Raynor, J. R. Keilor, W. L. Zuill and Chas. Schaufler.

The rules were then read and adopted, with few changes.

The subject of adopting a bill for presentation to our State Legislature at the next session, was considered and wisdom here counseled the convention's deliberations. After a vote it was decided to have a committee, appointed by the chair, to draft a bill and present a copy to each member, and it to be definitely considered at our next meeting. The chair appointed the following committee: Drs. Jas. McCoart, W. S. Hooker, W. Horace Hoskins, A. H. Lovett, A. S. Scheimer, Francis Givard and W. L. Zuill.

It was then moved and seconded to hold the next regular in Philadelphia, on the first Monday in March, 1884.

A vote of thanks was then extended to the retiring chairman and the committees of the day.

The Corresponding Secretary was instructed to notify all veterinary surgeons of the society's work and invite them to become members.

A motion was then made and carried that the chair appoint five members to read essays at the next meeting. Those called upon were Drs. Reinhart, Jas. P. Raynor, John Berry, Sr., Francis Bridge and C. J. Blank.

The Secretary was instructed to have five hundred copies of rules and by-laws printed for the use of members.

After a few remarks the convention adjourned.

W. HORACE HOSKINS, *Secretary*.

CORRESPONDENCE.

A CASE OF DYSTOCHIA.

Editor Review.:—I desire to ask you a few questions in connection with a case of dystochia lately seen in my practice. I might say that since my graduation last spring, I have had numerous calls to assist animals during labor, but this case is something new to me.

About six weeks ago I was summoned to see a common-sized mare that was reported to me to be in labor. Upon inquiry, I ascertained that this was her third foal. She had not experienced any trouble during the previous births. The service this time, however, was by a large Clydesdale horse.

The mare was worked regularly every day, on a farm, and given a box stall at night. On the evening I was sent for, she, after working, was tied up in a single five and one-half foot stall. At 5 o'clock she was noticed in pain. The colt presented anteriorly, and all went well, until the hips became engaged in the pelvic inlet. No further progress could be made. I reached my patient about 8 o'clock. Found her down; pulse, 70, and weak; hurried respiration; temperature, 103° Fah. The straining was violent.

The colt, as stated, was partially out of the vagina, while alongside and beyond it was seen lying on the floor, the large colon, much increased in size and congested.

I gave no hope of the animal's recovery, but at the earnest request of the owner to "do something," I began preparing an opiate, while an assistant was constantly fomenting the distended colon. Before I was ready to administer any medicine, the mare overcame the men who were holding her, and attempted to get up. This she partially did, and fell back upon the bowel, rupturing it, and allowing the escape of its contents. I then directed that the mare be destroyed.

Upon post-mortem next morning, I found the colt to be very large, but not abnormal in any way. There was a laceration of the left lateral wall of the vagina, through which the intestine escaped.

I would be glad to know if the colon preceded the foetus, or if it could be passed out by the side of the foal during the severe straining of the mare? Also, what would have been the prospects of recovery could I have returned the bowel and removed the colt?

J. A. MYERS, D.V.S.

[We are of the opinion that the colon followed the foetus, after laceration of the uterus by kicks, or severe straining, and that there was no chance of recovery.—ED.]

VETERINARY MEDICINE AT THE SCHOOL OF APPLICATION,
FORT LEAVENWORTH, KANS.

In 1881 the Government established at this post a School of Application for cavalry and infantry. It consists of four troops of cavalry, five companies of infantry, one light battery of artillery, with their respective officers; one colonel commanding the school, three majors, and one lieutenant from each of the thirty-five regiments of the army.

The school was organized in the autumn of 1881 and terminated its first course in June, 1883. The very satisfactory examination passed by the first class gives great promise for the future of the institution, for the methods and details of instruction were of necessity largely experimental during the first two years, and experience will no doubt suggest such changes in the course of instruction as shall make this a model military school.

When the board of officers appointed for that purpose were considering the curriculum to be adopted, they decided to recommend a number of standard works on veterinary surgery as text books, but for reasons unknown to me no instruction has been given on the subject. Several members of the first class expressed a desire to receive practical instruction in veterinary medicine, and proposed starting a class for that purpose, but owing to numerous obstacles the project fell through.

That some of the officers of the school are in favor of establishing a course in veterinary surgery I personally know, while the advantages which would result are apparent to all who may give the subject serious consideration.

A large majority of the officers detailed for a course of instruction at the school are young men, most of whom have had but little experience in the use and care of animals. But, as officers, this responsibility will almost surely come to them in the near future, for if they belong to the cavalry or light artillery, care for the public animals of their troop or battery is a part of their daily duties. If they belong to infantry regiments, they are liable at any time to be mounted, and are always eligible candidates for appointment as acting assistant quartermasters—a position often entailing a responsibility for a large number of

public animals. Under such circumstances it will be seen how important it is for the young officer to know not only what constitutes proper hygienic conditions and surroundings, but what to do in an outbreak of serious disease. Such knowledge cannot be acquired at the usual schools of learning, while the school of experience is not an economical one for the War Department.

The opportunity is offered at this post now to teach in a practical manner, many of the important matters relating to veterinary surgery. Chief among these are the proper feeding, watering and grooming of the animals in health; the general care of the sick or nursing; how to treat the more common diseases, as colic, indigestion, influenza, pneumonia, etc.; how to care for wounds, sores, saddle galls, etc.; now to detect glanders and farcy, and what to do in case of an outbreak. Lastly, the student should be taught to know when a horse is properly shod, and how tell his age; what constitutes soundness, and how to inspect for the purchase of horses and mules, or for the condemnation of animals incapacitated for further service.

Such a course of instruction could, with little effort, be instituted here in connection with the school of application, for the post numbers nearly five hundred horses and mules, and can furnish material for a considerable number of clinics, which may readily be supplemented by a large variety from the city of Leavenworth. With an outlay of one hundred dollars or less the hospital and all necessary conveniences for teaching can be completed. In conjunction with the clinical teaching in the hospital, the farriers of the different troops here should receive instruction in the compounding and administering of medicines, how to clean and dress wounds, etc.

A. A. HOLCOMBE, D.V.S.,
Vet. Surgeon, Dep't of the Mo.

FORT LEAVENWORTH,
Sept. 17, 1883.

SUBCUTANEOUS INJECTIONS IN THE TREATMENT OF UMBILICAL HERNIA.

DEAR SIR.—When lecturing to the class at the A. V. C., February 1st, 1883, subject: "Umbilical Hernia," you spoke of a French veterinary surgeon's method, namely, that of using hypo-

dermically a saturated solution of chloride of sodium, and remarking at the same time that if any of us had occasion to employ the remedy you would be pleased to hear the result.

On May 28th Mr. L. Stephens, a neighbor, came to my farm for the purpose of breeding some mares, and in the course of his conversation mentioned that he had two shoats that were badly bursted on the belly, and wanted to know if I could help them. He brought them over the same day. The pigs were about two months old, and weighed about sixty pounds apiece. The first one operated upon, (the sow), presented a tumor at the umbilicus shaped like an inverted corn; its antero-posterior diameter at base was, as near as I could calculate with the eye, from five to five and one-half inches long, while the lateral diameter was something like four inches; the apex dragged on the ground and had worn a hole very nearly through the skin. This abraded surface was about the size of a silver quarter dollar. The other, a barrow, (which had been castrated a few days before) presented the same appearance, only the tumor was a little larger in all its dimensions, and the point was worn to the size of a half dollar, and on pressure it was felt to be no thicker than tissue paper. In manipulating these tumors it was found impossible to return them to the abdominal cavity, but they were soft, very elastic and fluctuating on pressure. I proceeded to operate by inserting a hypodermic needle full length just under the skin from the base, obliquely and downwardly, into the (imaginary), four corners of the tumors, and injected into each of them two syringes full of the chloride of sodium solution. But three corners of the tumor of the barrow were injected, the fourth corner being occupied by the sheath and penis. It was thought an injection at this point might interfere with the animal's urinating. Eighteen days afterwards Mr. S. was at my barn again, and informed me that the tumors on both pigs were enormously swollen, and he believed that they would both die. To my question as to whether they ate and drank any, he replied that he could see no difference, but that he had not taken particular notice, for they were running with quite a number of other pigs about the same size.

On July 4th Mr. Stephens requested my presence on his farm to attend a cow that was sick, and improving the opportunity, I took a look at the pigs (it being then forty-two days after the operation.) The tumor on the sow had decreased to the size of a small hickory nut, but the barrow had not done so well. All of the pigs about a week ago had broken out of the pen, and the barrow getting into the garden, Mrs. S. put the dog after him. The pig ran and squeezed himself through the fence into the cornfield, and when Mr. S. found him the next day he was the worse for the wear. It is now the size of a large orange, with a well defined neck at the base. Previous to this it was no larger than the sow's was when I saw her.

Yours most respectfully,
T. C. WHITE.

BETTER CHOICE OF SUBJECTS FOR BREEDING PURPOSE.

DAYTON, Ohio, Aug. 5th.

To Prof. A. Lieutard:

SIR,—I noticed in the August number of the *Review* that a law has recently been passed prohibiting the breeding from diseased stallions.

I think this a good move in the right direction.

But my experience is that for every stallion affected with hereditary disease there are ten mares (in proportion to the number.) In this section if a man has what has been a good mare, as soon as she becomes useless for road purposes from navicular disease, ophthalmia, or anything that ruins her for road work, he breeds her.

It is a well known fact that there are many fine young horses that have a natural predisposition to navicular disease that on the slightest provocation is developed, when there is no other apparent cause than this hereditary predisposition.

The same can be said of many other diseases.

It is bad enough to have this condition of things in the human family, where it cannot be controlled, but the lower animals are in our power and can be controlled.

But I think it useless to commence at the little end of the horn.

Better take both ends and put the same restrictions on the mare as on the stallion.

Not only make a law but enforce it in both cases and improve instead of degenerate the horses of the country.

WM. R. HOWE, V.S.

NEWS AND SUNDRIES.

DISCOVERY.—Formal announcement has recently been made of the discovery of the specific fungus of whooping cough. The cry is still "They come."—*Polyclinic Advertiser*.

PLEURO-PNEUMONIA.—The recent outbreaks of pleuro-pneumonia in Pennsylvania and Salem, Conn., show clearly that we are no nearer rid of the disease than we were five years ago.

FOOT AND MOUTH DISEASE.—Reports come to us very frequently of fresh outbreaks of foot and mouth disease in England. We are happily without a single known case in the United States.

CATTLE PLAGUE IN RUSSIA.—Reports from all parts of Russia, as late as September 7, state that the cattle plague continues its ravages with unabated fury. Over a million cattle have fallen victims of the plague within the past four years in European Russia alone.

A STEP FORWARD.—Dr. Detmers, the veterinarian appointed by the Government to investigate the trichina, has entered upon the discharge of his duties. He is located at Armour's, in Chicago, where every opportunity is afforded him for the pursuance of his investigations.—*Am. Cultivator*.

YARDS OF BUTTER.—In some parts of Spain, where butter is a rare article of merchandise, it is sold, not by the pound, but by the yard. It is brought from the mountain district in sheep's intestines, like sausages that are "tied off" with strings in lengths as required by the buyer.—*Druggist's Circular*.

GREAT FECUNDITY OF AN EWE.—A black-faced ewe in New

Galloway dropped six lambs on the 28th of May. Four of these were alive, but one died shortly after birth. The other three were still alive when last heard from. The same ewe gave birth to five lambs last year. We should not care, however, to own such stock, a single lamb to the ewe being better, though twins are passable from extra strong, hardy ewes. —*Am. Agriculturist*.

MANITOBA SPEAKS OUT.—A memorandum from the Deputy Minister of Agriculture for Manitoba, Acton Burrows, shows that the Board of Agriculture of that Province are alive to the necessities of the hour. At the Provincial Exhibition to be held this fall, no stallion will be awarded a prize which has not first been declared sound and free from disease by the Consulting Veterinarian of the Board, Mr. W. McEachran, M.D., V.S.

FEEDING SYPHILITIC INFANTS.—At L'Hôpital des Enfants Assistés in Paris, where many of the waifs and foundlings of the city are cared for, a unique feature has been introduced by M. Parrot, consisting of a nursing service for syphilitic infants. The nurslings draw their nourishment directly from the teats of the ass, to which they are presented five times during the day, and three times at night. They thrive under this treatment, and seventy per cent. live, while almost all formerly died when fed from the bottle.—*Boston Medical Journal*.

POISONING FROM DISEASED MEAT.—Dr. Ruysch reports the poisoning of about two hundred persons in the town of Heesch, Holland, who had eaten the flesh of a cow that had died in giving birth to a calf, also the flesh of a still-born calf, and of another calf. All who had eaten the meat were taken ill, and three died. They suffered from severe gastric symptoms, chills, fever, headache, and great depression, so that the physicians supposed at first that they had to do with an epidemic of typhoid fever. Others presented the symptoms merely of gastro-enteritis. The nature of the poison in the flesh could not be clearly determined, as none of the animals had died from an infectious disease.—*Centralbl. für Klin. Med.*

CREMATION.—The *Prairie Farmer* has often advocated the cremation of animals dying of contagious diseases. All investiga-

tions by scientists show this to be the only safe and common sense disposition of the carcasses of animals perishing from hog cholera, Texas fever, pleuro-pneumonia, glanders and the like. A case illustrative is in the discovery recently made by Dr. Freire, of Rio Janeiro. In examining the earth where the victims of yellow fever had been interred the year before, he found "myriads of microbii, exactly identical with those found in the vomitings of persons sick with yellow fever." These germs he has cultivated, and has reproduced the disease in animals, whose blood after death he found to be filled with the seeds of yellow fever in various stages of growth. If our farmers will act upon this suggestion to burn the bodies of animals that die of disease, in any form, they will save the lives of thousands of valuable stock.—*Prairie Farmer*.

AVENA SALIVA.—A French veterinary surgeon, M. A. Sanson, has recently communicated to the Paris Academy a very interesting note upon a new active principle which he has discovered in the seed of the oat, to which this grain evidently owes its stimulant or exciting action. The peculiar property has been, turn and turn about, asserted and denied, though the idea has been popular both in England and France for a long time. Professor Sanson determined to decide the matter by direct experiments carried out at the Agricultural School at Grignon. He undertook to solve the problem by testing the action of oats upon the nervo-muscular excitability of the horse, but has effected this by means of the graduated current of the electric apparatus of Du Bois Raymond, the instrument being used before and after a feed of oats. In this manner the author has arrived at the conclusion (after a considerable number of experiments) that oats really possessed a very remarkable exciting action, and the next thing to be done was to ascertain to what principle they owed this property. The author found that the pericarp, or envelope of the seed, contained a substance which is soluble in alcohol, and which possesses the property of exciting the motor cells of the nervous system. This substance, the existence of which has been suspected by some and denied by others, is not vascilline, as certain writers have pretended, nor any odoriferous and stim-

ulating principle of that kind; but a nitrogenous compound, which appears to be an alkaloid, and for which Mr. Sanson proposes the name of *avenine*. It has hitherto proved to be uncrystallizable. It is a granular substance, of a brown tint, soluble in alcohol with a pale amber color, and yielding to analysis a composition which corresponds with the formula: $C_{56}H_{24}NO_{18}$. Some varieties of oats contain more of this active principle than other varieties, but they all yield a certain quantity of it. The grinding of the grain and simultaneous exposure to the air appear to modify it somewhat. Its effects on the nervous muscular action of the horse have been studied, and it has been found that for every two pounds of oats consumed there is set up an excitation lasting for about one hour. There appears to be somewhat more than one per cent. present in the dried grain.—*Druggists' Circular*.

AMERICAN VETERINARY REVIEW,

NOVEMBER, 1883.

FOURTH INTERNATIONAL VETERINARY CONGRESS.

EDITORIAL.

Having received many inquiries about the work done at the Fourth International Veterinary Congress held at Brussels on the 10th of September, and many persons having expressed a desire to read a complete record of the transactions, including the discussions upon the various subjects presented, we have decided to devote the November REVIEW to a translation of the minutes as they were presented in the Congress. The only question that has been omitted is that upon the sale of drugs by veterinarians—one in which it has been thought American practitioners have but little interest. To facilitate the understanding of the discussions, we present first, the conclusions submitted by each reporter on the four principal questions which can be of any interest on this side of the Atlantic.

PRESENTATION OF SUBJECTS.

ON THE ORGANIZATION OF THE VETERINARY SERVICE.

CONCLUSIONS SUBMITTED BY A. ZUNDEL, REPORTER OF THE COMMITTEE.

1st.—Organize in every country a sanitary veterinary service, engaged exclusively for all that pertains to veterinary science, whose members shall be the advisers of every department of the Government, and which (most particularly) shall be directly represented near the central authorities—that veterinary medicine shall have there her chief of service.

2d.—The sanitary veterinary service must employ the greatest possible number of veterinarians. To do this efficaciously and economically, it is necessary to establish two degrees or classes of attachés. The first possessing a more local character, and responsible less to the State than to the municipal and local authorities, and embracing, among its duties, the inspection of fairs and markets of animals, and of meats for butchery and abattoirs; the control of the rendering places; the inspection of breeding animals; the inspection or direction of mutual insurance companies against the mortality of cattle; the revision of the census of domestic animals, &c. The other, wider in its range, comprising the State service, and capable of extension into an international corps, being responsible specially for the repression and prevention of contagious diseases and epizootics, as well as having the control of the various local bodies.

3d.—Between the various States which, by a regular repressive and preventive service, may furnish guarantees of a good veterinary sanitary police, a convention shall be established, having for its objects: 1st—To advise other States with as little delay as possible, of the appearance of typhus, pleuro-pneumonia, foot and mouth disease, small-pox, disease of the coit, (dourine), glanders or farcy, scabies in sheep. 2d—To publish a periodical sanitary bulletin upon these diseases, their extent, progress and termination; which documents shall be also inserted in the international bulletin, if deemed advisable. 3d—To combat these diseases by measures of sanitary police which shall have been discussed and adopted as most advisable. 4th—To deliver to animals or herds traveling in or out of the territory, certificates of origin and of health, having only a guaranteed administrative value. 5th—To contribute to the publication of an international sanitary veterinary bulletin.

CONTAGIOUS PLEURO-PNEUMONIA.

CONCLUSIONS OF A. DEGIVE, REPORTER OF THE COMMITTEE.

A.—*Differential Diagnosis.*

1st.—From the anatomical point of view, all interstitial pneumonia of a certain extent, whose development does not depend

on local conditions or causes, ought to be considered as contagious epizootic.

2d.—Considered from the physiological point of view, epizootic pleuro-pneumonia is specially distinguished in the living animal by its contagious character and the symptoms of lobar-pneumonia.

3d.—In an infected stable, all animals that have either noticeable reacting fever, or either one of several symptoms showing the existence of an irritation of the respiratory organs, such as cough, increased and painful respiration, &c., should be regarded as suspicious cases.

4th.—The manifest spontaneity of a case of pleuro-pneumonia does not preclude the existence of the contagious form of the disease.

B.—*Prophylaxy.*

1st.—The development of pleuro-pneumonia can be prevented in some cases by the simple help of good hygienic conditions.

2d.—Diseased animals, or those suspected of disease, ought to be destroyed as soon as possible.

3d.—Animals suspected of contamination, or much exposed to contagion, should be isolated or destroyed. The slaughter of animals suspected of contamination is more specially indicated when the disease shows itself very exceptionally, or for the first time in a stable situated in a neighborhood where there are many cattle.

4th.—Animals suspected of contamination, or very much exposed to contagion, not slaughtered, may be with benefit submitted to inoculation, or to an appropriate preventive medication. Inoculation is specially preferable to slaughter when the animals belong to a large herd, subject to frequent changes, in which the disease has already made several appearances.

5th.—Inoculation should not be prescribed as a general or obligatory measure until some process shall be discovered whereby it may be practiced without danger to the health or life of the subject.

6th.—Inoculation should be practiced only with the previously

granted permission of the local authority, and should always be performed under the supervision of the official veterinarian.

7th.—All inoculated animals should be considered as liable to contamination, and treated accordingly.

8th.—Diseased and suspected animals should be reported to the authorities as soon as practicable. This reporting should be obligatory upon private individuals, veterinarians, inspectors, experts of meats, and abattoirs.

9th.—A special record should be kept of isolated animals, each one of which should be designated by a special *brand*, made with the hot iron.

10th.—The movement of suspected animals from the locality where they were exposed should be absolutely prohibited except in the case of those designed for slaughter; and in all such cases the transfer should be specially authorized by and take place under the direct supervision of the local authorities.

11th.—All cattle offered for sale should be accompanied by a certificate of health, showing that no epizootic disease has existed for the past six weeks in the place from which it comes.

12th.—In special cases, to be determined by the authorities, it will be proper to order the closing of fairs and markets; to prohibit the importation of animals from suspected localities; to establish a quarantine; to display signals at the entrance of infected centers or farms; to publish handbills and instructions reminding the people of their obligations and the precautions to be taken to prevent the spreading of the disease.

13th.—A close watch ought to be kept, not only on isolated animals, but also (*first*), on those exposed for sale in markets or fairs; (*second*) on those lodged temporarily in stables adjacent to said markets; (*third*) on all barns containing a number of cattle exposed to frequent changes, and where the disease has already appeared.

14th.—The duration of isolation should be forty-five days, at least, after the removal of the last case of the disease.

15th.—When the period of isolation has expired, the animals should receive another mark removing the effects of the first (referred to at 9).

16th.—The meat of a slaughtered diseased or suspected animal should not be used for food without the permit of the veterinarian having charge of the autopsy.

17th.—The skin should not be used until after having been soaked for at least twenty-four hours in a prescribed disinfecting solution.

18th.—Cadavers and remains unfit for food, should be either buried or altered so as to be entirely harmless.

19th.—Stables, fair grounds, markets and vehicles which have been occupied by diseased or suspected animals, should be carefully cleaned, washed and disinfected. These various operations should be made under the direction of the veterinarian.

20th.—A stable properly disinfected and ventilated for eight days can be used for new stock without inconvenience.

21st.—Pastures frequented by diseased animals should be quarantined for at least forty days.

22d.—The various tools used in dressing and cleaning, those that have been used for ordinary purposes or slaughtering, and for the transport and burying of diseased or suspected animals, ought to be destroyed or properly disinfected. Straw and hay used in such cases, may be used for horses or other solipeds, without danger.

23d.—All persons who have been soiled by virulent matter should wash their hands, and brush or wash their clothing and shoes with a disinfecting solution.

24th.—Diseased or suspected animals and their cadavers should, so far as practicable, be rendered inaccessible to persons or animals liable to infection or to become vehicles of the peripneumogenous elements.

25th.—It is proper to pay an indemnity to owners (*first*), for animals destroyed by order; (*second*), for subjects which have died from the sequelæ of inoculation; and (*third*), for subjects or property whose destruction has been found necessary. The value of this regulation would be in proportion to the liberality of its application.

26th.—Severe penalties should be imposed upon persons who resist the execution of the acts of sanitary precaution ordered by the authorities.

27th.—An efficient organization of the veterinary service forms the best guarantee of the application of the various measures above mentioned.

28th.—A last and powerful means of securing the extinction of contagious pleuro-pneumonia is to adopt the same measures in relation to the contagious diseases of animals that were employed for the destruction of the phylloxera: to form an international convention which should examine and indicate the essential elements forming the basis of the legislation which each country has been compelled by the consideration of its own interests to adopt.

ON THE QUESTION OF EDUCATION IN VETERINARY MEDICINE.

PROPOSITIONS OF THE REPORT OF MESSRS. MULLER AND WIRTZ.

I.

1st.—The preparatory branches required for the study of veterinary medicine should be the same as those required in the student of human medicine.

2d.—As, for various reasons, this first principle cannot be practically enforced, we ought at least to require that persons desiring to undertake the study of veterinary medicine should possess the acquirements necessary to secure admission to the higher classes of the better grade of institutions designed to impart those branches of knowledge which by common consent constitute a good ordinary education.

3d.—Persons who have not enjoyed the usual facilities for education should give evidence, at a special examination, of the possession of an amount of knowledge corresponding to that of the pupils in our common schools. This examination should take place before a jury composed of persons having no connection with the veterinary school, or interest in its results.

II.

There is no reason for the existence of inequalities of grades and degrees among veterinary practitioners, involving or implying a classification in respect to studies and acquirements.

III.

1st.—At least four years of special study are necessary to complete the amount of instruction in veterinary medicine sufficient to qualify a student to encounter the duties and responsibilities of the practitioner; especially if the study of the natural and physical sciences is included within that term.

2d.—The instruction of the first two years (first four semesters) ought to embrace: Physics, chemistry, natural history (geology, mineralogy, botany and zoology); anatomy, histology, physiology, and shoeing, with all the courses and practical exercises belonging to it. A course of practical micrography should also be included.

3d.—During the same period one may learn the branches of zootechny, embracing the natural history of domestic animals and their external form, and zootechny proper.

4th.—Clinical instruction may be attended during the last two years of study. To make the practical instruction of students complete, it is absolutely necessary to have, connected with the clinic of the hospitals and the polyclinic, an outside or ambulatory clinic.

5th.—Practical instruction in shoeing cannot be enforced as useful, but it ought to be studied to a reasonable extent.

6th.—The inspection of meats is one of the branches of instruction absolutely indispensable to a complete veterinary curriculum.

IV.

1st.—At the end of the second year (*fourth semester*) students ought to be examined upon the branches taught them in the first two years. None of them can follow the third year course without having passed satisfactorily this examination (of candidature or in physical sciences).

2d.—No student should be admitted to the examination of veterinary surgeon who is not also a candidate in veterinary medicine.

(The examination of veterinary surgeons shall not be on the same branches of the curriculum which belong to the examination for candidature.—W.).

(The examination of veterinary surgeon ought to embrace, besides anatomy and physiology, all the branches of veterinary education not belonging to that of candidature.—M.).

3d.—The essential regulations governing veterinary examinations in all countries ought, as nearly as possible, to harmonize in their spirit and purpose, and, as far as practicable, cover the same details of qualification and character.

V.

1st.—The existing system of boarding students is not the best, in view of the better development of veterinary schools, and its effect upon the social education of veterinarians.

2d.—If, from circumstances, exceptional and peculiar to any country, the system of boarding students could not be abolished, students ought to be allowed entire liberty outside the question of instruction; the regulation of the system ought to be as liberal as possible.

3d.—Obligatory boarding instruction ought to be suppressed.

VI.

1st.—Schools of veterinary medicine may be either separate autonomical establishments, or may be annexed to universities or other institutions of superior education; but veterinary medicine ought to be taught by special chairs. No one can approve of the creation of establishments in which the branches of veterinary education are divided among a limited number of university chairs; such a system can never become successful or efficient.

VII.

1st.—Professors in veterinary schools must be in possession of the diploma of veterinary surgeon. An exception to this rule can scarcely be admitted when relating to courses of the physical and natural sciences.

2d.—It is very desirable that veterinarians, before being called to professorships, should have enjoyed several years of practical experience as veterinary surgeons.

3d.—The diplomas of physician or of doctor of medicine ought not to confer in themselves any right to a veterinary professorship.

4th.—Professors ought to be chosen in preference from the body of assistants in the institution, and upon the nomination of the teaching body of the school to which the candidate would subsequently belong.

5th.—A school should contain as many intelligent and qualified assistants as possible, in order to maintain a good reserve of candidates from which, in a sudden emergency, a vacant professorship may be filled without delay.

PULMONARY PHTHISIS.

QUESTIONS OF M. LYDTIN, REPORTER OF THE COMMITTEE.

1st.—What is the influence of heredity upon the propagation of phthisis pulmonalis?

2d.—What is the influence of contagion upon the propagation of tuberculosis?

3d.—What are the preventive measures which ought to be employed against the bad influence that may be produced by the utilisation of the meat and milk of animals affected with phthisis pulmonalis?

LIST OF MEMBERS.

HONORARY PRESIDENTS.

Messrs. Rolin-Jacquemyns, Minister of the Interior.

Delwart, Prof. and Emeritus Director; founder of the Veterinary School of Cureghem.

HONORARY MEMBERS.

Messrs. Doctor Crocq, Senator at Brussels.

Heger, late Professor of the Veterinary School of Brussels.

Leyder, Private Secretary to the Minister of the Interior.

Moreau, Echevin of Anderlecht.

Parisel, Chief of Division to the Minister of Interior.

Ronnberg, General Director to the Minister of the Interior.

Somerhausen, General Director to the Minister of the Interior.

Van den Peereboom, Minister of State.

Van Lint, Burgomaster of Anderlecht.

Doctor Willems, Member of the Academy of Medicine of Hasselt.

FOREIGN MEMBERS.

Aumignon, President of the Veterinary Society and Chief of the Veterinary Service of Marne, (France.)

Dr. B. Albrecht, Veterinary Surgeon, Berlin.

J. Anne, Municipal Veterinarian, and General Counsellor of Calvados, delegate of the Veterinary Society of Calvados, Manche and Orne.

Bagge, President of the Sanitary Council of Domestic Animals of Denmark, delegate of Denmark.

Dr. J. Bayer, Professor in the Veterinary Institute of Vienne, delegate of the Secretary of War of Austria.

Berdez, Prof. and Director of the Veterinary School of Berne, delegate of Switzerland.

H. Berner, District Veterinarian, (Grand Duchy of Baden).

Dr. Bielen, of Lausanne, Switzerland.

Bivort, of Esch-sur-Alzette, Grand Duchy of Luxemburg.

Bouley, General Inspector of the French Veterinary Schools, delegate of the French Government and of the Academy of Medicine of Paris.

Brown, Honorary Associate of the Royal College of Veterinary Medicine, Chief of the Veterinary Department of the Privy Council of England, delegate of the English Government.

Buffèt, Government Veterinarian of the Grand Duchy of Luxemburg and Secretary of the Agricultural Society of Wiltz.

Butel, Veterinarian at Meaux, (France).

Cagny, Veterinarian at Senlis, (France).

Van Cappelle, Counsellor to the Minister of the Interior at La Haye.

Cope, Chief Inspector of the Department of Agriculture, Privy Council at London.

D. Danitsch, Health Council of Belgrade, delegate of Servia.

Dr. De Azary, Professor in the Veterinary Institute of Buda-Pesth, delegate of Hungary.

- Delahaye, Vice-President of the Veterinary Society of the Seine Inferieure and Eure.
- Destin, Secretary of the Veterinary Society of the Seine-Inferieure and Eure.
- Van Driel, District Veterinarian of Eindhoven.
- J. B. Ercolani, Director of the Veterinary School of Bologna.
- Esser, Professor at Gottingue.
- Feger, Principal Army Veterinary Surgeon, delegate of the of the French Government.
- Dr. Fiedler, District Veterinarian at Kosel, (Silesie).
- Fischer, Veterinarian and Echevin of Luxemburg.
- Dr. G. Fleming, Principal Army Veterinarian, President and delegate of the Royal Veterinary College of England.
- Fricker, Director of the Veterinary School of Stuttgart, delegate of Wurtemberg.
- Ph. Fusch, District Veterinarian of Mannheim, (Germany).
- Garcin, of St. Quentin.
- Ch. Goetz, of Brunath, Alsace-Lorraine.
- G. Grissonanche, delegate of the Veterinary Society of Puy-du-Dome.
- Grever, delegate of Oldenbourg, Germany.
- Guillebeau, Professor in the Veterinary School of Berne, (Switzerland).
- Guittard, Secretary and delegate of the Veterinary Society of Lot and Garonne.
- Dr. Hermes, of Eupen.
- Herzog of Langerthal, (Switzerland).
- Houssin, President and delegate of the Société Vétérinaire Pratique of Paris.
- Joannin, of Bucharest, (Roumania).
- Kaiser, of Marburg, (Germany).
- N. Klima, delegate of Hungary.
- A. Koch, of Vienne.
- Kohne, Professor and Governmental Veterinarian of Hamburg.
- Konhaeuser, of the Veterinary Institute of Vienne.
- N. Larinet, delegate of the Council of Veterinarians of Besançon.
- Lavallard, of Paris.

- J. Law, President of the U. S. Treasury Cattle Commission, delegate of the U. S. Department of Agriculture.
- C. Leblanc, delegate of the Central Society of Veterinary Medicine of Paris.
- Leisering, Professor at the Veterinary School of Dresden, (Saxony).
- A. Liantard, Professor and Principal of the American Veterinary College of New York, delegate of the U. S. Veterinary Medical Association.
- Lies, of Duchy of Brunswick.
- Lindquist, Professor of the Veterinary School of Stockholm, delegate of Sweden.
- Lipthay, delegate of Hungary.
- Locusteano, delegate of Roumania.
- Lustig, Professor in the Veterinary School of Hanover, (Germany).
- Lydtin, Principal Veterinarian of Karlsruhe.
- Metzdorf, Professor at Breslau, Germany.
- A. Michaud, of Ertasager-le-Lac, (Switzerland).
- K. Muller, Professor at the Veterinary School of Berlin.
- F. Muller, Professor at the Veterinary School of Vienna, (Austria).
- Neiman, delegate of Bulgaria.
- P. Constantinesco, delegate of Roumania.
- Von Paumgarten, Adjunct Professor in the Veterinary School of Vienna, (Austria).
- Peteaux, of Pont-Audemer.
- J. Pollet, Departmental Veterinarian at Lille.
- Potterat, delegate of Switzerland.
- K. Priser, District Veterinarian of Retzingen, (Bavaria).
- Putz, Professor in the University of Halle, (Prussia).
- Quivogne, delegate of the Veterinary Council of Lyons.
- Rabe, President and delegate of the Veterinary Society of Hanover, Professor in the Veterinary School.
- Dr. J. Robertson, Professor and delegate of the American Veterinary College.
- Rockl, Professor at the School of Stuttgart, delegate of Wurtemberg.

- Roll, Director and Counsellor in Austria.
 Rossignol, delegate of the Société de Médecine Vétérinaire Pratique of Paris.
 Schiodte, Professor at the Copenhagen School, (Denmark.)
 Schlamp, assistant in the Giessen Veterinary Institute, (Hesse).
 Dr. K. Schmidt, of Aix-la-Chapelle.
 Seifman, Director of the Lemberg Veterinary School, (Austria).
 Siegen, Municipal Veterinarian of Luxemburg.
 Siegmund, Director of the Abattoir at Bale.
 Sjostedt, Professor in the Veterinary Institute of Stockholm.
 Strebel, of Fribourg, (Switzerland).
 Sussdorf, Professor at the School of Stuttgart, (Wurtemberg).
 Thierry, Director of the Agricultural School of La Brosse.
 Tisserand, delegate of the Veterinary Societies of Lorraine.
 Tomyuk, Chief Veterinarian, delegate of Servia.
 Ulrich, President and delegate of Silesia.
 Vernaux, delegate of the Society of Seine-Inferieure.
 Viseur, Departmental Veterinarian of Arras.
 Dr. Wirtz, Director of the Veterinary School of Utrecht, delegate of the Netherlands.
 H. Young, of England.
 Zipperlen, Professor at Hohenheim, (Wurtemberg).
 Zundel, Principal Veterinarian at Strasburg.

BELGIAN DELEGATE.

- Hugues, delegate of Lot and Garonne.

BELGIAN MEMBERS.

Aerts, Andre, (A.), Andre (U.), Baerts, Bailleux, (A.), Bartholeyns, Bastin, Baudson (V.), Benthin, Bergeron, Boll, Bouckaert, Bouillon, Bouillot, Braham, Brennet, Bril, Brouwier, Bruyere, Buchet, Callens, Cambron, Carbillet, Carette, Chabotaux, Chanteux, Chartier, Claes, Coclet, Colson, Contamine, Copette, Courtois (G.), Courtoy (R.), Creteur, Crevecœur, Criem, Danis, Davisters, Deblock, Dele, Deghilage, Degive, Descamp, Dessart, Demesse, Desmet, Desmet, Demeester, Delree, Deramaie, De Hemptinnes, Deneufbourg, Deneufbourg, Delwart, De Thibaut, De Thibaut, Delmelle, Delattre, Demblon, De Wyngaert, De

Marbais, De Bisscop, De Clercq, De Caestecker, Degive (A.), Dierickx, Dochy, Dothee, Doucet, Dubois, Dubois (J), Durieux, Dr. Dupuis, Dupont, Dupont, Duthoit, Duvieusart, Elsen, Eraers, Everard, Fabry, Fadeux, Ferir, Firlefyn, Foelen, Fossoul, (E.), Frere, (G.), Gallez, Gardedien, Geeraerts, Gerard, Gerard, Gerard (J.), Gerbelhay, Gille, Godfrin, Godineau, Gratia, Dr. Gratia, Grosse, Hallet, Hallot, Hansoulle, Hardy, Henan, Hendrickx, Henrard, Hoeman, Hotton, Hougardy, Huart, Hublet, Hugues, Jans, Jacobs, Jacques, Kerstenne, Laho, Laporte, Laridon (A.), Lavigne, Lebeau, Leboutte, Leclèreq, Le Comte, Lefebvre, Lefebvre, Legrand (E.), Lekeu, Leenaerts, Leonard, Leroy, Leyder, Linard, Limbourg, Lison, Lonhienne, Lorge, Luytgarens, Macorps, Mahieu, Mans, Maris (pere), Maris (fils), Marbaise, Marnette, Masson, Masure, Mathieu, Melon, Melsens, Micho, Michez, Michiels, Michotte, Migeotte, Milz, Moens, Monoyer, Mosselman, Neckerbroeck, Noel, Oger, Parmentier, Paquet, Pattyn, Pauchenne, Petit, Poelman, Polet-Pierret, Polus, Prouveur, Purnode, Questroy, Rayee, Renneleog, Remy, Remy, Reul, Roman, Rosoux, Schollaert, Stubbe, Suykerbuyck, Simon, Simon, Slachmulders, Smeets, Snoeck, (A.), Snoeck, (J. B.), Thiernesse, Thomas, Tossins, Tossins, Van Autgaerden, Van Cutsem, Vanderlinden, Vanderschueren, Vanderbies, Vanderstraeten, Van de Walle, Van Gerven, Van Hacken, Van Hertsen, Van Huffelen, Van Passen, Van Rooy, Van Rutten, Van Vyve, Van Wallendaël, Wangermee, Weemaes, Dr. Wehenkel, Wertz, Windels, Wuilcot.

CONSTITUTION.

OBJECT.

SEC. 1.—The object of the Congress is to establish upon principles as uniform and general as possible, an organization of the great body of veterinary practitioners, with a view to the elevation of veterinary medicine and its establishment upon a standard of acquirement and appreciation such as it is entitled to occupy, in countries where its organization and facilities for improvement have been defective; of substituting for the special methods

and measures of such country, regulations more general in their application, and which, within certain limitations, shall permit the solution of embarrassing questions by removing them beyond the restrictions of circumscribed territorial rules ; to the consideration of questions of veterinary sanitary police, and of the powers and duties of practitioners ; and of protecting both human subjects and domestic animals, by rational measures founded upon positive scientific data, from certain morbid influences to which all are exposed.

COMPOSITION.

SEC. 2.—The Congress shall be composed of (*a*) honorary and (*b*) active members.

SEC. 3. Honorary membership may be conferred by the Commission of Organization, or by the Executive Committee of the Congress, upon persons who have rendered important services to the cause of veterinary medicine by their contributions to the scientific institutes of the profession, or other meritorious labors.

SEC. 4. The active membership shall be composed of (*a*) members of the faculty of a veterinary institution ; (*b*) practitioners of veterinary medicine ; and (*c*) special delegates representing either class.

ORGANIZATION—OFFICERS.

SEC. 5. The first business following the opening of the Congress shall be the election of officers, who shall constitute an Executive Committee, to consist of (*a*) Honorary Presidents ; (*b*) President ; (*c*) Vice Presidents ; (*d*) General Secretary ; and (*e*) five Adjunct Secretaries.

SEC. 6. The decisions of the Executive Committee shall be subject to acceptance by a majority of members present.

SEC. 7. The discussions of the meeting of 1883 shall include the following subjects : 1. Veterinary education. 2. Organization of the veterinary service. 3. Diagnosis and preventive measures in contagious pleuro-pneumonia. 4. Heredity and contagiousness of phthisis pulmonalis, and means of preventing the effects following the use of the flesh and milk of animals therewith affected. 5. Of the right of veterinarians to sell drugs.

MEETINGS.

SEC. 8. The Congress shall determine, each day, the hours of meeting for the day following.

SEC. 9. Except when otherwise ordered, the discussions of the Congress shall be public.

SEC. 10. The President shall have the right to exercise final disciplinary authority, in accordance with established parliamentary rules, whenever required in the interest of the Congress.

SEC. 11. The Secretary shall, at the opening of each meeting, read the correspondence, papers, manuscripts and publications received.

The President shall present to the Congress such of the communications as he may select ; and direct the reading of the minutes of the preceding meeting.

SEC. 12. The duties of the Adjunct Secretaries are to keep a record of the proceedings of the meetings, and to deliver to the General Secretary all communications presented or read by the members, together with all publications offered at the meetings.

SEC. 13. Except when specially permitted by the Congress, no member shall speak more than twice on the same subject, nor for a period exceeding fifteen minutes at one time. But this rule is not intended to apply to the authors of the reports under discussion.

SEC. 14. If no member rises to speak, the discussion shall be considered as closed *de facto*. If requested by twenty members the previous question shall be put by the President and the votes of a majority of active members present shall be final.

SEC. 15. The results of the reports and discussions, together with any proposed amendments, shall be submitted to a vote of the Congress, and with a statement of the number of votes cast, shall appear on the record of proceedings.

Active members only possess the right of voting ; but the privileges of discussion are accorded to honorary members also.

SEC. 16. All questions shall be determined by a *viva voce*, except in case of doubt, when, on the request of not less than five active members, the question may be determined by a rising vote.

PUBLICATION.

SEC. 17. The proceedings of the Congress shall be published, under direction of the General Secretary, and each member shall be entitled to receive one copy thereof.

RECORD OF PROCEEDINGS.

OPENING SESSION.

At 10 o'clock, Mr. Somerhausen, General Director of the Minister of the Interior, assumed the President's chair. He was accompanied by several members of the Commission of Organization, and in the name of the Secretary of the Interior, welcomed the members in attendance, and after some well-timed remarks referring to the importance of international meetings of this nature, declared the Congress open.

The Secretary, Prof. Wehenkel, in a few words, recalled the history of previous congresses, and referred to the labors of the organizing committee, in whose behalf he expressed the feelings of the deepest respect and gratitude to his Majesty the King of Belgium, who had so kindly extended the royal patronage to the Congress. He also thanked Messrs. the Ministers, who had lent their official assistance to the occasion, as well as to the members of the Congress, who in such large numbers had responded to the call of the committee.

Mr. Somerhausen then proposed, as the first business of the meeting, to proceed to the discussion of the Constitution of the Congress.

The Secretary having read the constitution, it was adopted section by section, and subsequently accepted and adopted by a unanimous vote. The following gentlemen were then unanimously elected officers: President, M. Thiernesse. Vice Presidents, Messrs. M. H. Bonley, of Paris; Jacops, of Termonde; Muller, of Berlin; Roll, of Graz, and Wirtz, of Utrecht. General Secretary, M. Wehenkel. Adjunct Secretaries, Messrs. W. M. Gerard, Gratia, Reul, Siegen and Stubbe.

Mr. Somerhausen, after declaring the result of the election,

declared the bureau formed, and in the absence of the President, called Mr. Bouley, the first of the Vice Presidents in alphabetical order, to the chair.

Before leaving the chair, Mr. Somerhausen presented a motion, offered by Mr. Wehenkel, that Mr. Thiernes be notified by special message of his nomination to the Presidency, and to express to him the sincere wishes of the Congress for his rapid return to health. The motion was unanimously adopted.

On taking the chair, Mr. Bouley proposed a vote of thanks to Mr. Somerhausen, who had so willingly accepted the place of his Excellency, the Secretary of the Interior, and had so warmly welcomed the members of the Congress. He also tendered his own thanks for the honor conferred upon him. The meeting then adjourned until 1:30 in the afternoon.

FIRST DAY OF MEETING.

Prof. Muller (Vice President) in the chair.

The meeting was called to order at 1:30 P. M.

Mr. Bouley, in the name of the Committee, presented to the Congress their thanks for the honor conferred upon them.

Mr. Wehenkel presented a communication containing a special invitation to the members to visit the Hotel de Ville, the sewers of Brussels and the Court House.

The first question, to wit, "The Organization of the Veterinary Service," was then introduced and discussed. Mr. Zundel then read the resolutions of the various reporters.

Mr. Locustiano, of Bucharest, described the German and Roumanian veterinary organizations, and said that if sanitary police was properly applied all over, the annoying measures of the closing of frontiers would, to a great extent, disappear.

DISCUSSION ON THE FIRST RESOLUTION OF THE REPORTERS.

Mr. Pütz asked that the applications of laws of sanitary police be by veterinarians, and that there should be a special representative of their interests in the central administration.

Mr. Quivogne: The veterinarian must remain a veterinarian, a physician, and not become a functionary. Veterinary service

should be given to all the veterinarians. Others, *les indignes*, must be excluded.

Mr. Eraers: We are only expressing the desire to simplify the international service. If government pays veterinarians, they must become functionaries of the State.

Mr. Wirtz proposed to modify the resolution by saying: "Organize in each country a sanitary veterinary service, whose members, etc." He consequently proposed the removal of the words "exclusively charged with all that pertains to veterinary science."

Mr. Rossignol proposed to say: "Organize in each country a sanitary veterinary service, whose members, all veterinarians, shall be the counsellors of the administration," etc.

Mr. H. Bouley advised care against becoming too exclusive. He mentioned the advisory committee of the epizootics in France, which counts its members among lawyers and the Director of the Board of Health. He argued in justification of the presence of those gentlemen in the counselling committee.

Mr. Zundel moved to strike out the word "science," and to replace it, as proposed by Mr. Wirtz, by "veterinary service." He agreed with Mr. Bouley in his remarks.

Mr. Quivogne reiterated that veterinary service ought to be exclusively composed of veterinarians, and proposed the following amendment: "To organize in each country a sanitary service, composed exclusively of veterinarians, who shall offer all the guarantees necessary for the assured applications of international laws of sanitary police in reference to domestic animals."

Mr. Laho proposed to substitute for "veterinary science," "all that refers to veterinary sanitary police."

Mr. Rossignol withdrew his proposition.

Mr. Wirtz agreed with Mr. Laho, providing the word "sanitary" is omitted.

Mr. Aerts proposed the following: "To organize * * * of all that refers to this service, whose members," etc.

Mr. Eraers, after discussing the various amendments, proposed the following: "To organize in each country a veterinary sanitary service, exclusively in charge of all that refers to this

service, whose members, all veterinary surgeons, shall be the advisors of the administrations of all grades, but which shall be specially represented near the central authorities, at which point the chief officer, having in charge the interests of veterinary medicine, shall be stationed."

This was adopted by a practically unanimous vote, only four votes appearing in the negative.

SECOND RESOLUTION—DISCUSSION.

Mr. Cagny proposed as an amendment: "The veterinary service shall be composed of two orders of agents, one portion being qualified veterinarians, who shall originate the necessary orders; the others being police agents, whose duty it shall be to supervise the execution of the prescribed measures."

Mr. Rossignol proposed that all the veterinarians should belong to the sanitary organization.

Mr. Leblanc viewed the question as having three sides:

First.—The sanitary organization, comprehending only special functionaries, well paid by the state, with opportunities for outside private practice.

Second.—Departmental veterinarians, for the sanitary service, not allowed to engage in private practice, and having for adjuncts a large number of district veterinarians. This solution seemed to him to be the best.

And *third*, all veterinarians are sanitary veterinarians.

Mr. Pütz contended that the existence of functional veterinarians is indispensable.

Mr. Larnet thought that frontier veterinarians ought to be allowed to practice in neighboring districts.

Mr. Quivogne: The question refers to a great and a small service; we speak of union, and do all that is in our power to cause division. I propose to vote on the following amendment: "There is no such distinction in the sanitary service as of two degrees," etc., erasing also, "one with more local character, dependent less upon the State than upon the municipal and local authorities."

Mr. Viseur objected to the amendment.

Mr. Paquet moved that all veterinarians should belong to the sanitary service. This amendment was rejected.

Mr. Viseur argued that there should be a State Veterinarian, to whom private practice should be prohibited, and that all the other colleagues be his adjuncts as sanitary veterinarians.

Mr. Bouley proposed a new reading of the article : " The veterinary sanitary service ought to employ the greatest number possible of veterinarians. It embraces the surveying of fairs and markets; of animals; the inspection of meat; that of slaughter-houses; the control of rendering places; the inspection of animals used for breeding purposes; the inspection or direction of insurances against the mortality of animals; the revision of census lists of domestic animals. * * * It comprehends the State service, with its possibility of becoming international; especially embracing the repression and prevention of contagious diseases, and of epizootics, as well as the control of all other veterinary services."

This was adopted by a large majority.

THIRD RESOLUTION.

It was read by Mr. Zundel, who added: " It often happens that when a contagious disease develops itself in a country, all other countries prohibit importations. This is a very detrimental measure. If it were possible to resort, as in the case of phylloxera, to internal regulations, that would be a great benefit."

Wirtz explained the international relations which have existed since 1873 between Holland and Germany, and between Holland and England, in reference to typhus.

The third resolution was then adopted unanimously, and the meeting adjourned at 4 P. M.

SECOND DAY OF MEETING.

Dr. Wirtz, Vice President, in the chair.

The meeting opened at 10 A. M.

The President thanked the Congress for the honor conferred upon him. At his request, the Secretary read a letter from Mr. Thirnesse to Mr. H. Bouley, Vice President, thanking the members

for the high honor conferred upon him in calling him to the Presidency of the Congress, and expressing his regret that he was prevented by sickness from participating in the meetings.

The Secretary also read letters from several members of the Congress, offering apologies for their inability to be present.

The bureau had also two communications from Mr. Lindquist (Stockholm), one relating to the organization of the veterinary service in Sweden; the other to the prophylactic measures against epizootics.

On motion of Mr. Lindquist, the papers were approved, and their publication in the bulletin of the Congress was ordered.

The minutes of the last meeting were read and adopted, with the suppression of a sentence of Mr. Cagny, which constituted a repetition.

The Secretary suggested that he believed the Congress might suspend its work on the following Friday at an earlier hour than usual, and appropriate the time to a trip to Antwerp. Facilities for the excursion at reduced rates of travel will also be offered to the members of the Congress on the following Sunday, to Ostend, Blankenburghe, Burges or Gaud.

The President:—The question of to-day is pleuro-pneumonia. Mr. Degive, reporter on the subject, has the floor.

Mr. Degive first considered the differential diagnosis of contagious pleuro-pneumonia, referring to the essential parts of his report.

Mr. Tisseraud thought that the symptoms described by the reporter are insufficient. He gave a description of the symptomatology of the disease, and presented his views upon the nature of the affection; he rejected the spontaneous generation of the disease, as well as that of the transformation of germs, and proposed a namendment in conformity with his views.

Mr. Pütz objected to the spontaneous development.

Mr. Leblanc agreed with Mr. Degive upon the question of spontaneity; according to his observations it is rare and exceptional. From an anatomical point of view he cannot establish any difference between contagious pleuro-pneumonia and sporadic pneumonia. It can only be distinguished by its contagious character.

Mr. Bouley agreed with this idea, and said that the sporadic disease is very rare. He said, also, that the question of spontaneity is well decided, and alluded to the importation of the disease into some parts of America, where it had never before existed.

Mr. Liantard, on the invitation of Bouley, referred to the facts already known in the American history of the disease as imported into Massachusetts. It was effectually suppressed, and has not reappeared since 1865.

Mr. Lydtin spoke on the same subject.

The President stated that Dr. Willems, an honorary member of the Congress, wished to occupy the floor, and he improved the occasion to propose to the Congress a vote of welcome to this learned gentleman who has spent a great deal of his activity in supporting and disseminating a discovery which may yet be questioned by few, but which, at any rate, is one of great value in the history of plenum-pneumonia. (General applause.)

Dr. Willems thanked the Congress for the expression of their esteem. He opposed the theory of spontaneity, and recalled several cases in proof of the contagionness of the disease. He showed how the disease had been introduced at Hasselt in 1836, and was induced to recommend the practice of inoculation.

Mr. Rossignol presented his views in reference to the differential diagnosis.

Prof. Wehenkel said that he did not think the question of spontaneity or non-spontaneity ought to occupy all the time of the Congress. He declared that there is nothing which can oppose the admission of the direct germs of the disease, or even of inferior beings; he saw nothing impossible in transformism; on the contrary, he believed in its reality. He believed that the question of spontaneity can be laid on the table, and that the principle admitted by the Congress of Zurich could be admitted by us, viz.:—that “*from the point of view of sanitary police and of practical medicine,*” this malady might be considered as purely contagious; “and in proceeding in this manner,” he added, “every one will be left to his philosophical opinions upon the question of spontaneity or non-spontaneity of the disease.”

“The measures of sanitary police ought to be based upon the

principle that pleuro-pneumonia is *propagated* only by contagion."

Mr. Fleming called upon the Congress to pronounce upon the question of the spontaneity of the disease. He, like many others, considered contagion as the sole cause of the affection.

Mr. Locusteaano, basing his views upon the fact that contagious pleuro-pneumonia does not exist in Roumania, said that for this reason he was a disbeliever in the spontaneous development of the disease.

The meeting adjourned at 12:30, and was again called to order at 2 P. M.

Mr. Lindgvist, who first had the floor, stated that in Sweden, Norway and Finland, the disease made its appearance after the importation of foreign cattle; he considered pleuro-pneumonia as an affection purely contagious.

Mr. Visenr said that contagious pleuro-pneumonia is a disease of the connective tissue; that it may arise spontaneously in given conditions of regime and hygiene; most commonly, however, developing itself by contagion. It may appear with the lesions of pleurisy only, especially in young animals. In these, inoculation sometimes communicates pleurisy. Under his observations the lesions vary with the mode of feeding.

The President inquired whether any members were united in calling for the termination of the discussion upon the first part of the question.

Mr. Berdez asked that the Congress should pronounce upon the question of the spontaneity or non-spontaneity of the disease. He remarked that the facts observed in Switzerland show that pleuro-pneumonia does not arise spontaneously. The manner of its introduction has always been known, and contagion has been found to be the cause of its appearance in every case. He proposed the following resolution:

"The Congress declares that at present there exists no direct or positive proof of the spontaneous development of pleuro-pneumonia, and considers that the application of sanitary measures against it should be based on the fact that it propagates itself only by contagion."

Mr. Cope greatly regretted that any person should continue to

recognize the theory of spontaneity. In England, some so-called spontaneous cases were always found to be spurious, and could be traced to contagion.

Mr. Degive objected to the remarks of Mr. Tisserand in relation to the nature and symptoms of the disease. He admitted the spontaneity, not as a *spontaneous genesis*, but as resulting from the transformation of certain germs as the exclusive cause of the propagation of the disease.

Mr. Tisserand proposed the following resolution in place of that submitted by the reporter :

(a) *Differential Diagnosis*.—"In the anatomical point of view, one must consider as acute contagious pleuro-pneumonia, all lobular alterations of the lung, accompanied by a very evident and semi-transparent thickening of the interstitial cellular tissue, and of the corresponding pulmonary pleura.

"In chronic cases, the pathognomonic lesion is always found at one of several points of the lung, more or less near to purulent centres.

"The introduction of a new animal into a barn during the month, or even the year, preceding the appearance of the disease, renders the diagnosis much more certain.

"2d.—Considered from the physiological point of view, in the living animal, epizootic pleuro-pneumonia, as soon as it becomes apparent, is specially characterized by contagiousness, and the following symptoms, existing together or independently of others :

"Painful, moist and rather weak cough; sensibility of the chest on percussion of the thorax; respiration hesitating and interrupted.

"3d.—The report is unchanged.

"4th.—The fact of the presence of one case of pleuro-pneumonia, apparently spontaneous, does not disprove the existence of contagious disease.

(b) *Prophylaxy*.

1st.—"The chances of immunity against pleuro-pneumonia can be increased by the aid of good hygienic conditions."

In view of the proposition of Mr. Berdez, Messrs. Wehenkel

and Leblanc proposed the following: "This Congress declares that there exists no positive evidence authorizing a denial of the theory of the direct development of contagious pleuro-pneumonia, but that, on the contrary, considerations of fact and science compel us to consider this development as possible, though rare. The Congress also believes that from the point of view of sanitary police, it is proper to consider it as being transmitted only by contagion."

Mr. Degive accepted this proposition.

Mr. Viseur proposed the following: "This Congress admits all necessary reservations as to the causality of pleuro pneumonia; but it recognizes the facts of contagion, and is of opinion that it is the indication of sound expediency in matters of sanitary police, always and everywhere to adapt its action to the hypothesis of the exclusive contagiousness of the disease."

Dr. Vartz leaving the chair to Mr. Bouley, proposed the following: "That from the anatomical point of view, at least relating to veterinary police, all lobar, and at the same time interlobular pneumonia, ought to be considered as epizootic contagious pleuro-pneumonia. On the strength of various objections, he appended to his amendment the words: "Whose development does not depend on local traumatic causes." This amendment was adopted as the first resolution. The second paragraph, after discussion by Messrs. Tisserand, Bouley, Degive and Wehenkel, was accepted, with the addition of the word "contagious" before "pleuro-pneumonia." After several remarks from Messrs. Wirtz, Degive, Wehenkel, Lydtin, Roll, Cagny, Aerts, Fisher, Louistiano, Putz and Muller, the following was added to Section 3:

"(a) The following shall be considered as suspected of epizootic contagious pleuro-pneumonia: all animals, which, in an infected centre, shall present either a state of reactive fever or symptoms of disease of the chest."

"(b) *As suspected of contamination*, all animals in an infected centre or which have been there within three months; or that may have been exposed to contamination in any other way."

Mr. Quivogne proposed the following: "An isolated case of contagious pleuro-pneumonia does not preclude the existence of the contagious affection."

A proposition signed by twenty members, to proceed to the nominal call for the fourth resolutions and its amendments was here presented to the bureau.

A proposal of Messrs. Lydtin and Wirtz, to erase the fourth resolution, was put to vote and carried. From this vote the amendments of Messrs. Berdez, Leblanc and Wehenkel were dropped, as well as that asking for the nominal call, which had thus become useless. Dr. Wirtz here read a dispatch from the Veterinary Institute of Dorpat, sending their compliments to the members of the Congress.

A letter of Mr. Hughes, asking the postponement of the discussion of the subject on education, was read.

The meeting adjourned at five o'clock.

THIRD DAY OF MEETING.

Dr. Wirtz, Vice-President, in the chair.

The minutes of the last meeting are read, and after a correction asked for by Dr. Willems, were accepted.

Mr. Lydtin remarked that Mr. Locustiano had said that contagious pleuro-pneumonia does not exist in Roumania, and on that account he does not believe in its spontaneous development theory.

The minutes of the previous day having been read, Mr. Berdez said that he desired that mention should be made of the question put by twenty members, asking for the nominal call of the decision. The President remarked that the motion had dropped, because of the disposition made of the fourth article, but that it should nevertheless appear on the records. The definitive adoption of the minutes was postponed to the following day, until the German text should be received.

An invitation was extended by Mr. Hardy to the members of the Congress to visit the barracks and hospitals of the regiment of Guides.

The President then proposed to proceed to the question of prophylaxy, taking up the articles singly, without entering upon a general discussion of the subject, with a view to shorten the debate.

Mr. Degive believed that two points ought to be discussed, to wit: inoculation and stamping out. For himself, the question of inoculation was already decided. This measure ought to be considered efficacious. His opinion was based on statistics, which he recalled, and though not definitive, they sufficed to prove the efficacy of the measure. As to the opportunity of its indication, he left it to the Congress to decide.

Messrs. Lydtin and Zundel moved to discuss the question of stamping out, as being the more radical, and to treat inoculation subsequently.

Mr. Degive thought that this method of proceeding would diminish the importance of the question of inoculation, if the Congress were called to vote upon that of stamping out.

The following amendment was presented by Messrs. Lydtin and Zundel :

“ Knowing that from the point of view of sanitary police, epizootic pleuro-pneumonia is a disease which is spread only by contagion, is generally incurable, and usually terminates fatally; this Congress declares :

“ That to prevent the development and spread of the disease, it is proper to apply against it the measures indicated against other contagious diseases, which are at the same time incurable and fatal.”

Mr. Bouley proposed to simplify the discussion by omitting the articles which belong to the general prophylaxy of contagious diseases, and to limit the examination to the two special modes applied against exudative pleuro-pneumonia, viz.: stamping out and inoculation.

Mr. Leblanc approved of the design of the proposition of Messrs. Zundel and Lidtin, but to the second part of it only.

The President called for the question of the order proposed by Messrs. Zundel and Lydtin, and it was adopted.

The first part of the proposition was then adopted.

Article 2. Mr. Dessart was opposed to the slaughter of animals only suspected of the disease; this measure, he argued, would be more injurious to the public wealth than the disease itself.

Mr. Berdez, in answer, said that he was in favor of slaughtering, because it is not so destructive.

Mr. Lydtin supported the proposition of Mr. Degive, and Messrs. Lydtin and Zundel that of the amendment.

Five members uniting in the proposition, the discussion on the second paragraph was closed.

Article 2 was then put to vote, and adopted.

A recess was then ordered until two o'clock P. M.

On reopening, the delegates from Switzerland presented two copies of the convention existing between Switzerland, Austria and Hungary, for the prevention of the propagation of epizootics through trade in cattle.

A paper relating to the slaughter of animals as a means of stamping out contagious pleuro-pneumonia was presented by Mr. Pollet.

Article 3 was then taken up for discussion. Messrs. Ubrich, Roll, Tisserand, Aerts, Viscur, Lydtin, Berdez, Degive, Potteral, Leblanc, Muller, Larmet, Feger, Fleming, Quivogne, Putz, Cagny and Stubbe participating.

Mr. Tisserand argued that isolation cannot be opposed if its duration is not limited; he proposed to determine the duration before isolation is acted upon. His proposition was carried.

Mr. Berdez presented the following amendment: "That animals suspected of contamination, or that have been exposed to contagion, must be sequestered or destroyed, or otherwise killed immediately."

Before voting on article 3, the President presented article 14 as a subject of discussion, relating to the duration of the term of isolation.

Prof. Muller proposed a minimum of six months; Mr. Contamine four; Mr. Degive argued for forty-five days.

Prof. Muller's proposition was adopted.

The first part of the amendment of Mr. Leblanc, reading: "Contaminated animals are isolated," was discussed and rejected.

Mr. Aerts proposed to substitute for the sentence "contaminated or suspected of contamination" the words "animals which have been in contact with others *affected with the disease, or*

which have been in a contaminated centre." This amendment was rejected.

Prof. Muller proposed the following:

"Animals suspected of contamination must be placed in such conditions of isolation as shall prevent their connection with other animals of their species, or shall be killed."

Mr. Leblanc offered this:

"(a) Contaminated animals shall be isolated;

"(b) But when the disease shall exist for the first time in a country, the killing of all the contaminated animals must be carried out."

It was agreed that the phrase, "suspected of contamination," which is a central idea in this discussion, may, in order to remove all the differences of interpretation, be replaced by the word "*contaminated*," to convey the meaning of "suspected of being infected through contagion." In this case, there are several points of discrimination to observe:

(a) Animals presenting the evident symptoms of the disease. (*animaux atteints—erkrankte Thiere.*)

(b) Animals which present morbid manifestations, which suggest suspicions of the existence of the disease. (*douteux ou suspects—der Krankheit verdachtige Thiere.*)

(c) *Contaminated animals*—(*der Austeekung verdachtige*); these last including those which have been in such conditions that it is proper to admit that they may have received contagion, or that they have been in conditions proper for infection, while they yet do not present symptoms which would subject them to be considered as *affected* or *suspected*."

Mr. Pattera moved the striking out of the second part of Article 3.

This was rejected, and the report adopted as engrossed.

Articles 4, 5, 6 and 7 were then taken up for discussion.

Mr. Bouley spoke, directing his remarks to showing the value of preventive inoculation, and submitted the following motion:

"The experimental proof is to-day furnished, that it is possible to extend to the organism of bovine animals an actual im-

munity against contagious pleuro-pneumonia, by the inoculation of the virus of that disease."

Mr. Grisonnage moved "that disinfectants, well used, may take the place of inoculation, or even be superior to it, and even diminish the need of stamping out."

Dr. Wirtz presents the following amendments:

"Article 4—Drop the words 'or to a proper preventive modification.'

Article 5—Strike out.

Art. 6.—Strike out the first part of the section.

Mr. Desgive stated that on the following two days, at 8 o'clock, the collection of vaccine matter in the vaccinogene establishment of Cureghem les Brussels would take place, and members of the Congress were invited.

Five members proposed the following change in the business of the Congress: "The question relating to tuberculosis shall be discussed on Saturday." This was done on account of the fact that several members of the Congress are directors of abattoirs, and will not be able to attend sooner. The proposition was adopted.

The discussion was closed, and the meeting adjourned to the next day at 9 o'clock.

FOURTH DAY OF MEETING.

Dr. Wirtz, Vice-President, in the chair.

The meeting was called to order at 9.30 A. M.

The Secretary read the minutes of the last meeting, the adoption of which was postponed till the publication of the German text.

The President presented a letter from Mr. Pollet, which will be inserted in the bulletin.

A communication of Mr. Isidor Renny, Director of the abattoir of Gand, will also be mentioned.

The discussion on Articles 4, 5, 6 and 7 of the report was taken up.

Mr. Berdez agreed with Mr. Bouley as to the efficacy of

inoculation, in its purely scientific aspect, but doubted the value of the measure in the practical sense. It is detrimental to commerce; it gives a false security concerning the animals operated upon. It may happen that animals already affected by latent pleuro-pneumonia may be considered as protected, and put again in circulation, under the false protection of inoculation.

Mr. Grissonnanche insisted upon the importance of the use of disinfectants against contagious pleuro-pneumonia, and described in detail the process which has proved with him most successful. He preferred the use of disinfectants, especially of chlorine and its compounds, to inoculation, which he considered as useless, and often even injurious.

Prof. Law would admit that inoculation of pleuro-pneumonia—which gives security against a second attack of the disease—had the same value as vaccination had to variola. But he believed that, as a measure of sanitary police, it contributed more to limit its propagation than to extinguish it; slaughter is a more radical measure, and more efficacious to completely destroy a center of infection.

Inoculated animals take a specific disease analogous to pleuro-pneumonia itself, differing from it only as to its seat. The germs develop themselves to the point of introduction, and extend their effects upon the organism, without affecting it in any other way.

He prepares lymph for inoculation by warming it at 140° to 150° Fahrenheit. By using this precaution, he had succeeded in inserting the virus in a forbidden region (*region defendue*) without producing local accident. After the inoculation a slightly marked reactive fever has shown itself, and a complete immunity has been obtained, as proved by successive reinoculations with natural virus.

The liquid of inoculation introduced into the circulatory apparatus remains without effect; the germs are destroyed by the morphological elements of the blood. In the connective tissues, where the cellular elements are rare, these same germs resist and multiply, giving rise to lesions analogous to those that they produce in the lung when they have penetrated into that organ.

Mr. Leblanc opposed the proposition of Mr. Bouley, presented yesterday:

He declared that if the efficacy of inoculation can be logically admitted as having been demonstrated by experiments, one must necessarily recommend, not only facultative, but obligatory inoculations. The proof of this last does not yet appear. Inoculation on the tail does not give a disease analogous to pleuro-pneumonia, as ought to take place were the affection really communicated. He needed some proofs of the acquired immunity, and he wanted to see it demonstrated that animals do really remain refractory to contamination or to new inoculation. But testing (*criteres*) inoculations performed upon animals operated upon once with success, have been followed by death, as reported by Messrs. Cagny and Zundel. And again, it cannot be said that pleuro-pneumonia is a microbial disease; until to-day at least, this microbe, if it exists, has neither been isolated or demonstrated. The principle of preventive inoculation can be applied generally.

As far as the facultative inoculation, he believes that everybody ought to be free to use it or reject it, as he believes best.

He mentioned examples where, very often, the happy results attributed to the method of Dr. Willems, were only pure coincidences; analagous facts being met with in locations where inoculation had not been performed.

Mr Lydtin: "The researches made in the laboratory of the office of public hygiene in Germany, have so far failed to discover the cover microbe of pleuro-pneumonia virus."

Mr. Hugues, delegate of the French Society of Lot-et-Garonne, proposed the following: "Among preventive measures, inoculation is strongly recommended."

He presented the committee a short note relating to the question of the day, and asked its insertion in the bulletin of the Congress: adopted.

Mr. Fleming asked if the disease can be propagated by inoculated animals. He does not believe that the affection is transmitted by the expired breath of its subjects.

He was a partisan of inoculation, and his ideas were based on numerous observations made in Scotland. It might be employed in large herds where slaughtering would be too ruinous; he would advise it in countries notably infested with disease.

Prof. Pütz opposed the opinions of Mr. Leblanc; he was surprised that that gentleman should find that the disease produced by inoculation is not identical with pleuro-pneumonia. The same difference exists as to anthrax, which may at times be followed by death, without giving rise to the symptoms or characteristic lesions of the disease, bacterides only being found in the blood.

He was convinced of the efficacy of inoculation, and his conviction had become stronger as his experience had increased. For himself, two kinds of inoculation must be admitted: 1st the preventive inoculation, and 2nd, that of necessity. The latter is more often abortive than the first, because the animals may be already diseased at the time of the operation. Preventive inoculation had given him some very favorable results.

Prof. Wehenkel considered the propositions of Mr. Bouley as too absolute and too broad. With him the questions relative to inoculations, is not yet completely decided. The argument of the testing (*criteres*) inoculation is not decisive.

Experiments seem to prove that inoculation gives immunity against a second inoculation of the same virus, but it is not proved that it generally resist the disease itself; he would require that new experiments be made before deciding upon a principle so absolute as that expressed in Mr. Bouley's propositions.

Mr. Ulrich remarked that, upon the invitation of the Prussian government, he studied pluro-pneumonia in Belgium in 1852, had then exposed animals to contamination; the result of his experiments has been in favor of inoculation. Since then, he has continued to inoculate with success in Austria, Prussia and Russia.

Dr. Willems defended his prophylactic method. He said that the lesions of the cadaver were the same upon inoculated animals as upon those affected with the disease after a natural infection.

Pluro-pneumonia is due to a microbe, he had observed, with Van Kempen, a long time ago. Pasteur has also observed it and had been able to isolate or cultivate it separately from the other germs contained in the pulmonary lymph.

The testing inoculation has a great value; it proves that immunity is obtained by pleuro-pneumonia inoculation, to the same

extent as that obtained by vaccine. He referred, in support of his opinion, to experiments made by him.

Dr. Wirtz introduced some figures to show the favorable result obtained by inoculation in Holland in 1878 and 1882. Upon 128,308 animals inoculated, the loss had been very low, but one sixty-one-hundredths of the individuals operated on. He was of opinion with Dr. Willems, that the caudal lesion is analagous to that of the lung; it is an affection of the connective tissue.

He proposed to modify Sec. 4 of the report by striking out the words: "or to an appropriate preventive medication."

In a second amendment, he proposed the striking out of Sec. 5.

Mr. Degive accepted the amendment.

Dr. Wirtz was also in favor of omitting from Section 6 the words "cannot be performed without the previous authorization of the local authority."

Messrs. Degive and Eaers moved the striking out of the words "under the surveillance of the police." Dr. Wirtz accepted the amendment.

Fleming and Wirtz moved to strike out Sec. 7.

Dr. Willems asked the Congress to pronounce upon the following questions: All scientific interpretations being reserved, no fact in practice has proved the contamination of a healthy by an inoculated animal."

Mr. Quivogne offered the following amendment to Sec. 5: "Isolation shall be prescribed as general and obligatory every time that slaughter is not ordered."

Mr. Degive opposed the objections against the efficacy of the method of Dr. Willems. He recalled the figures mentioned in his report, to show that this measure not only prevents the effects of a testing or other inoculation, but also and especially the contagion of pleuro-pneumonia.

The failure of an inoculation may be attributed to several causes; as badly-obtained virus, defective surgical means, or delay in the inoculation.

In his view, the principle is perfectly established, that inoculation gives immunity; there remains but one question to decide: it is that of the application of the method.

In concluding, he offered an amendment to Section 4—he asked to substitute in place of “to prefer inoculation to slaughter” the words “to practice inoculation.”

Profs. Kohne and Muller presented an amendment as follows:

“Preventive inoculation ought to be rejected.”

“Inoculation of necessity can be recommended and not ordered, when the disease has already made its appearance upon many animals.”

The meeting adjourned at 12:30, and session was resumed at 2 p. m.

A vote was taken upon the proposition of Mr. Bouley, and it was adopted by 22 votes against 18 in the negative, and with 15 absentees.

The amendments of Messrs. Wirtz and Degive to Section 4 were adopted.

Upon a remark of Dr. Wirtz, Mr. Degive consented to substitute in Section 4 for the words “contaminated or suspected of contamination,” the words “suspected of contamination or much exposed to contagion.”

Mr. Quivogne’s amendment was rejected.

The first part of Messrs. Kœhne and Tomyuk’s amendment was adopted, without alteration; the second part was modified by other amendments of Messrs. Bouley, Lustig and Lahø.

Mr. Bouley asked to omit the words, “when the disease has already made its appearance upon many animals.”

Mr. Lustig proposed to change “to be recommended” by “may be admitted.”

Mr. Lahø wished to change the expression “inoculation of necessity” to “inoculation, *so called*, of necessity.”

The second part, as amended, was then adopted.

By the effect of these two votes, Section 4 was changed for the amendment of Messrs. Kœhne and Tomyuk, and after some observations relating to the value of the expressions “preventive inoculation and inoculation *so called* of necessity,” the following was adopted: “Preventive inoculation, or that which is practiced when the disease does not exist in a country, must be absolutely rejected: inoculation *so called* of necessity, that is, that which is

performed when the disease exists in a herd, may be admitted but not prescribed."

Section 5 was obviated by Dr. Wirtz's amendment, accepted by the reporter.

Dr. Wirtz's amendment, accepted by Mr. Degive, which asks for the striking out of the first phrase of Section 6, was adopted.

Upon the proposition of Messrs. Degive and Eraers, supported by Dr. Wirtz, the second phrase of Section 6 was replaced by "the inoculation shall always be done by a veterinary surgeon."

Section 7 was stricken out.

Mr. Degive proposed to ask that all inoculated animals shall be reported to the authorities. Adopted.

Dr. Willems asked the Congress to decide upon the proposition he had presented in the morning, and reading as follows: "All scientific interpretations being reserved, no fact in practice has to this day proved the contamination of a healthy by an inoculated animal."

Mr. Cagny objected, and mentioned an example of contamination of a healthy by an inoculated animal.

Mr. Lydtin remarked that if the fact spoken of by Mr. Cagny exists, it is not due to inoculation, but is the consequence of the disease existing in the animal previous to inoculation.

Mr. Pottoret presented the following amendment: "It is not proved that an inoculated animal cannot transmit the disease to a healthy one."

Dr. Willems' amendment was rejected, and that of Mr. Potterat adopted, by a vote of 18 to 5, with 24 not voting.

Mr. Degive asked to substitute for Sec. 8 the following: "Inoculated animals shall be reported to the authorities." Adopted.

In the discussion of Sec. 20, Messrs. Lydtin and Muller proposed to say, "an entirely evacuated barn, and properly disinfected."

Mr. Potterat would like to see the last three words of the article taken off "without any inconvenience."

Mr. Degive accepted the amendment, and proposed the following reading: "A barn cannot be repopulated until after having been entirely evacuated and properly disinfected, and then well ventilated for eight days."

The amended Sec. 20 was then adopted.

Sec. 21.—Mr. Bouley moved to reduce the duration of the sequestration in pastures, and Mr. Anne proposed this amendment: "Pastures which have been frequented by diseased animals must be quarantined during *at least fifteen days*." Adopted.

Prof. Muller proposed to remove Sec. 25 from the record files.

Mr. Quivogne asked to remove the second and third. The striking out of the second was ordered.

Mr. Potteret presented an amendment to No. 1 as follows: "It is proper to grant an indemnity to owners of animals for those destroyed by official orders, and for the expense of disinfectants." Adopted.

Mr. Lydtin proposed to add to the last phrase—"The indemnity shall amount to four-fifths of the value of the animal, and of the totality of the value, deductions being made of the value of the parts of the cadavers which can be utilized if the animal proves to be healthy." Adopted.

Before closing the day, Dr. Wirtz thanked the meeting for the marks of sympathy and kindness extended to him during his presidency.

The meeting adjourned at 5 P. M.

FIFTH DAY OF MEETING.

Mr. Bouley, Vice-President, in the chair.

The minutes of the last meeting were read, and, with slight modifications, their adoption was postponed until the publication of the German text.

The President stated the question relative to education to be the order of the day, but that following that there is another of very great importance, for the discussion of which time may be needed, and which touches upon many interests. He therefore asked the gentlemen to be brief in their remarks, and thus to hasten the discussion.

Mr. Hugues presented a comparative tableau of his proposition and of those of Messrs. Wirtz and Muller.

Mr. Bouley offered his compliments to Mr. Hugues on his important report upon education, a paper which may always be considered with benefit; he proposed, for the sake of brevity, to follow in order the propositions of Messrs. Muller and Wirtz.

Proposition 1.—Mr. Hugues asked the adoption of paragraph 1 of that proposition. He then read a communication from the Veterinary Society of Lot et Garonne, which will be printed in the bulletin.

Mr. Laho said that to-day, matriculation or examinations in universities were no more required in Belgium; that this system ought to be disapproved of, and that some guarantees ought to be required from the student which can be furnished by an examination on admission to the school.

Mr. Quivogne said that it would be desirable to have a uniform education for all countries; he acknowledged that this is difficult to obtain, but would require that in every country the student should be expected to prepare himself for veterinary studies, and should present the same guarantees that are asked for from the student of human medicine. He paid a compliment to the report of Mr. Hugues, and presented the following suggestions, which he would like to see admitted by the Congress:

“The International Veterinary Congress of Brussels, considering:

“That veterinary medicine is for all nations the principal guardian of hygiene and public wealth; that there is everywhere a national and undeniable desire to witness the rapid progress and establishment of its interests, and to see it assume in all countries the place among other scientific institutions which is its undoubted right; desire to express the wish and anticipation:

“1st.—That the cause of veterinary medical education shall be considered, in all countries, as a national one, depending upon public instruction, and assimilated to human medicine;

“2d.—That the various chairs or departments belonging to that education, except those of inspector or director of the veterinary schools, whose nomination belongs to the government, shall be granted only after competition, and to persons in possession of the diploma of veterinary surgeon;

“3d.—That a consulting commission, composed two-thirds of the members of the teaching faculty, and the other third of army or civil veterinarians, be instituted by the proper authority, to establish, reform, or modify, where judged proper, the schedule of veterinary education in each nation;

“4th.—That in all countries the conditions of admission to the pursuit of veterinary education should be like those imposed on young men who enter upon the study of medicine, and that the possessor of the diploma of veterinary surgeon shall have the same legal privileges with those pertaining to that of doctor of medicine.”

Mr. Lindquist gave a detailed explanation of the programme of the Stockholm school, stating that the degree of bachelor is required for admission.

Mr. Hugues remarked that the conditions mentioned by Mr. Lahø are temporary.

Mr. Bouley:—Professional schools furnish students who have all the necessary knowledge to be admitted in our schools. Statistics prove that it is not the most serious preparatory studies which give always the best results. He could mention the names of students admitted to the veterinary schools after preliminary studies, which names, to-day, are among the most celebrated. He thought that students might be required to have a probationary year of primary studies, and then dismissed if found incompetent. It would be wrong to turn aside intelligent youths. Our schools are intended to produce men of the profession. That there is some degree of identity between the two medicines; yes! but veterinary art has for its object the conservation of things whose value may be estimated by a money standard, which is not true of human medicine. Man has a value that cannot be thus defined.

Mr. Quivogne.—We are frequently told that many students would be rejected under the system I recommend. It would not be so, as where education is gratuitous and obligatory, those who are now ignorant would come under instruction; intelligence would supersede the ignorance now existing, and many more of our youth would have access to the higher studies than now seek them.

Mr. Larinet assented generally to the opinion of Mr. Bouley, relating to the parallelism which should exist between the physician and veterinarian; but he added that the latter must qualify and inform himself in reference to hygienic questions, and that in this respect they become the equal of the former. With this qualification he would admit the proposition of Mr. Quivogne.

Mr. Putz moved that the second paragraph be stricken out

Prof. Muller insisted upon the necessity of retaining paragraphs two and three, and proposed their adoption, with modifications, if necessary.

Mr. Lustig agreed to the questions of Messrs. Hugues and Quivogne in their essential features; he, however, believed it ought to be amended, as it seemed to him that, for these gentlemen, some preparatory education should be dispensed with. For himself he thought the degree of Bachelor of Sciences, for admission in veterinary schools, equivalent to that of *Bachelor etts lettres*. It proposes to substitute for proposition A of Mr. Hugues and 1 of Messrs. Muller and Wirtz the following:

“To be admitted to study one must have obtained the degree of *Bachelor es letters* or of *es sciences*, that is, he must have terminated the studies of the preliminary branches of education.” Mr. Hugues accepted the proposition, which was adopted by a large majority.

Proposition 2d was adopted unanimously.

Proposition 3d.—The first part was adopted after the rejection of the proposition of Mr. Hugues requiring five years' study.

The Society of Lot and Garonne, through their delegate, Mr. Hugues, asked that the duration of the studies be uniformly, four years in all.

In relation to the 2d, Mr. Quivogne asked that the courses of chemistry and physic be curtailed; as long as the degree of Bachelor is required, the student must already possess a considerable amount of knowledge in these branches.

A member remarked that, though a Bachelor, he was glad to study these branches again while in the school. Several members proposed the suppression of the words, “and of the practical exercises attached to it, a course.” This was agreed to, and the paragraph stricken out.

The 3d was not admitted.

Mr. Hugues proposed that the fourth paragraph should read, "there must be not less than two professors of clinic." Thus modified this was adopted.

For paragraph five, Mr. Bouley desired that the Congress maintains the practical teaching of shoeing as desirable, as there may be some students who would like to make themselves more perfect in that branch.

Mr. Purtz thought that the paragraph was annulled by the modification of No. 2 as admitted.

Mr. Bouley disputed this and thought such teaching useful.

Mr. Purtz said the majority was of a different opinion, or they would not have voted as they did. The paragraph following was adopted.

The Secretary General announced that the Minister of the Interior was expected to assist at the meeting on the afternoon of Saturday the 15th. The President thereupon proposed the postponement of the discussion of the question of the day to that meeting, in order to avoid for that day the discussion on a question of a purely professional interest. Adopted.

The meeting adjourned to the next day at 9 A. M.

SIXTH DAY OF MEETING.

Messrs. Jacops and Bouley, Vice Presidents successfully in the chair. The meeting was called to order at 9 A. M.

Mr. Jacops thanked the Congress for appointing a Belgian veterinarian to the vice-presidency, which he considered a marked compliment to the Belgian veterinary profession, and he will endeavor to fulfil its duties to the satisfaction of his friends.

The minutes of the previous meetings were read and adopted.

The Secretary laid before the Congress a communication received from the Minister of Public Works, expressing his regret at being unable to assist at one of the meetings, or at the banquet of the Congress. He announced that the Minister of the Interior would preside at the last meeting of the Congress. The Secretary also presented a communication from Mr. Fleming,

asking that the fifth Congress be held in London; together with a letter from Mr. Brown to the same effect. He also reported that the following papers had been deposited with the bureau: By Mr. Bromvier, twelve copies of "Tuberculous phthisis in its connection with the butcher's trade." And also by Mr. Locusteano, two copies of "Law upon sanitary veterinary police." (Bucharest).

Mr. Rossignot occupied the floor for the purpose of expressing his conclusions upon the right of veterinarians to sell drugs.

* * * * *

The question was closed by Mr. Jacops, who called Mr. Roll to the chair for the discussions upon tuberculous phthisis.

In taking the chair Mr. Roll expressed his thanks, and his fears that the limited time at the disposal of the Congress would preclude a thorough discussion of the subject, which he hoped would be placed first on the programme of the fifth international meeting. He offered his thanks to Mr. Lydtin for his important report of the subject.

The meeting then adjourned after a short general discussion.

When called to order at 2:30 P. M. the President announced that the Minister of the Interior would preside over the meeting at three o'clock, and that he has been asked if there would be a fifth Congress. The Congress upon consultation answered affirmatively. The date and place of that meeting would be decided at a later moment. Returning to the order of the day, he recalled the importance of the subject, viz: tuberculosis, so ably reported upon by Mr. Lydtin. In the name of Congress and that of Mr. Roll, he moved a vote of thanks to the author of the report, which he was assured, would furnish a solid base for a part of the labors of the Congress.

Mr. Lydtin said, "Gentlemen, I appreciate very highly the compliments paid me by our President and the flattering opinions here accorded, and so much the more so, that they are offered by two great masters in veterinary science, Messrs. Roll and Bouley. They will sustain me in the hard and laborious work I have undertaken, and in which I see the only road to progress for our science and profession."

"Phthisis is so common a disease that it deserves before any other ailment the name of *universal panzootic*.

"This disease not only touches the preservation of our cattle, but also the health of man. If we succeed in solving the question, we shall have reached a noble object, that of protecting at the same time the prosperity and health of the public. Such results will seem to us our just reward in the esteem, consideration and gratitude of the whole world."

These remarks were received with great applause.

The General Secretary, Prof. Wehenkel, taking into consideration the shortness of the time for a discussion worthy of the subject, proposed the following: "This Congress, fully aware of the importance of the question of tubercular phthisis, presented for their discussion, believes that, considering the want of time for proper attention to the subject, in accordance with its importance, it will be proper to place the question first in the order of the day for the next Congress. In so doing the thought of members will from this day become more generally directed to the question and new and numerous arguments will be added to those already so well stated by Mr. Lydtin."

The President called for a vote on the resolution:

Mr. Larinet remarked that the question is not now sufficiently ripe to be properly treated from a scientific point of view, but he believed that it might be discussed in a practical sense, and he asked Congress to decide that it is prudent to abstain from eating the meat obtained from a tuberculous animal.

Mr. Pütz thought that the question of whether or not the meat in this case can be used is purely a medical one; he added that at a former Congress, held in Germany, no decision was reached on that point.

Mr. Quivogne considered it not possible to wait in this case. Lyon, from which he was delegated, waits for the opinions of Congress on this subject. As a practical point one may recognize a general and a local tuberculosis, and he asked what is to be done in either case?

The President called for a solution of the question.

Mr. Rossignol agreed with Mr. Quivogne. He asked what is

to be done when one meets with the flesh of a tuberculous cow prepared for food?

The General Secretary observed that if the Congress desired to have one or two supplementary sessions, either one of those important questions might be discussed. He believed that all the members present, and all the members of the organizing committee, will be willing to vote an extension of the meeting.

Mr. Bouley said, from the scientific point of view, the question can be reserved; as to the practical point, the Congress can say in what cases the meat may be given to public consumption.

Mr. Larmet offered a proposition signed by himself, Messrs. Quivogne, Anne and Rossignol, reading as follows:

"Considering that it is indispensable that this Congress should express its opinion in relation to tuberculosis in its relations to the inspection of meats, the undersigned ask of the Congress to declare that it is wise to determine the cases in which animals may be accepted or rejected for public food."

The President again inquired if the Congress wished to take up that question?

Mr. Lydtin said that in the Grand Duchy of Baden, a law was asked for in relation to the measures to be recommended against that malady, and that he himself had, with others, examined that important subject. He added, that for centuries regulations to that effect have existed. Three distinctions have been made as to the use of the meat of tuberculous cows; in the first degree, the use of the meat was allowed without trouble; in the second, the meat was not confiscated, but its sale was allowed only in designated places, and as diseased meat; in the third, the meat was confiscated and buried.

Dr. Willems desired that the question be discussed now.

Mr. Bouley asked if the Congress desired that in this session the subject should be discussed from the point of view of the use of the meat? The proposition was adopted without opposition.

The President: Does the Congress wish according to the proposition of Messrs. Larmet, Quivogne, Anne and Rossignol, to fix to-morrow's meeting at 8 o'clock?

Yes, yes; was a general response.

The President: When does the Congress intend to hold the next meeting?

Mr. Putz. The date cannot be discussed, but the place of meeting may.

Mr. Larinet proposed that the next meeting be in two years. Rejected.

Mr. Feger suggested within five years.

Mr. Muller agreed. Put to vote, and unanimously adopted.

The President: Karlsruhe, London and Paris have been proposed as the place of the next meeting.

Messrs. Brown, Law and Fleming recommended London, but on taking the vote, the majority decided for Paris. * * * *

The Minister of the Interior having taken the Presidency of Honor, the question of education was taken up.

Mr. Wirtz, for himself, and Messrs. Roll, Cagny, Wehenkel, Leblanc, Aerts, Berdez, Contamine, Degive, and Hugues offered an amendment relating to the education in pharmacy, saying that the theoretical and practical education in that branch should be included in all veterinary schools.

Chapter IV of Messrs. Miller and Wirtz's propositions were then taken up.

Mr. Putz contended that to obtain a diploma of veterinary candidate, an examination ought to take place at the end of the second year, but that the student should remain free to present himself or not. He proposed that (*first*), at the end of the second year of study, students of veterinary medicine should pass an examination in the branches of those two years; (*second*), none should be admitted to the examination of veterinary medicine unless successful in the first.

Mr. Rabl preferred the proposition of Messrs. Wirtz and Muller.

Mr. Stubbe did not approve of the examination at the end of the second year upon all the branches of those two years. He would not admit that in the examination of a veterinary candidate, the student be examined on natural sciences, especially chemistry and physics, branches which belong to the examination in the scientific branches. He continued, that it is important

that the student should study and appreciate the biological sciences, which are the basis of medical study, which cannot be done under the system now followed, as physis and chemistry prevent it. He was in favor of an examination in the natural sciences and one for the veterinary candidate. He proposed the division of the examination of candidates into two distinct branches; the first including the natural sciences proper (physis, chemistry and botany); the second, the biological sciences (anatomy, physiology), etc., etc.

Mr. Larinet favored an examination at the end of each year, and proposed an amendment to that effect, which was also signed by Messrs. Anne Rossignol and Quivogne. Mr. Hugues proposed to drop the first paragraph.

Mr. Dubois would say: "the veterinary candidate shall pass two examinations upon the different branches of veterinary education, the first comprehending the preparatory qualifications (for candidature); the second covering the essential branches of veterinary medicine proper.

The General Secretary would maintain the examination to test the candidate for proof that he had attended clinical instructions for two years previous to his application for the examination for his veterinary surgeon's degree.

Mr. Quivogne did not like the diploma of candidature, because, if the holder of it is afterward prevented from continuing his studies, he can easily become an empiric by abusing his title of candidate.

Prof. Wehenkel stated that as given in Belgium, that diploma does not admit of this objection. The right to practice belongs only to the finished graduate of veterinary medicine.

The Honorary President presented the three propositions following:

(a) The first is radical, that of Mr. Feger, and proposes to omit Chapter IV, considering its purport to be foreign to the associated question.

(b) That of Mr. Hugues, asking the suppression of the first paragraph.

(c) And that of Messrs. Muller and Wirtz.

The proposal to strike out the first paragraph, carrying with it the rejection of the proposition of Mr. Feger, was acted upon, and decided negatively.

In relation to No. 2, there were two written propositions, one of Mr. Wirtz, providing that "the examination for veterinary candidature comprehends the branches taught during the first two years ;"

The other, presented by Messrs. Quivogne and Larmet reads : "At the end of each year the veterinary student will be examined upon the branches previously taught, and shall not be permitted to enter upon the course belonging to an advanced class unless he has before passed that examination." "The examination at the end of the year shall not in any case involve the rejection of the candidate, and he shall be entitled to a repetition of the examination, when finally examined for a diploma."

The first part of the motion of Messrs. Larmet and Quivogne was accepted ; the second rejected. The General Secretary, Prof. Wehenkel said "In view of the adoption of the proposition of Messrs. Larmet & Quivogne, disposing negatively of number 2 of the report, and also the amendment of Mr. Wirtz, I am obliged to alter my proposition, and I move that "no candidate, however, shall be admitted to examination as a veterinary surgeon, unless he has followed with success a course of clinic for at least two years after having passed the examination of the second year of study."

A member moved to omit the words "with success." The Secretary : "Very well. I am willing."

Another member asked whether the clinic must be followed in the school, and whether that of a well known practitioner would not answer.

Prof. Wehenkel said he saw no objection, but that such a case was but a mere exception.

Thus modified the proposition was adopted.

Said the President, "We now reach Chapter 4, Section 3. On this there is :

(a) An additional deposition signed by Mr. Eraers, and another by Mr. Leblanc, both asking that the jury of examination for

the arrangement of the grades shall always consist partly of professors and partly of practitioners.

This was adopted.

Mr. Hugues moved that in the decision of the jury, a vote be taken of the results obtained by the students during the year, and that these be counted for one-third in the examination.

There being much difficulty apprehended in carrying this successfully into effect, Mr. Hugues did not insist upon his motion, and the discussion was postponed. The meeting adjourned at 4:45.

SEVENTH DAY OF MEETING.

Mr. Roll, and subsequently Mr. Bouley, Vice President, in the chair.

The meeting was called to order at 8 o'clock.

The minutes of the last meeting were read by the Secretary, and adopted.

Mr. Hugues presented a paper on "the transmissibility and the action of some morbid products, etc., etc."

Upon a comparison of views, it was decided that on account of the insufficiency of the time remaining, that question should be treated only so far as it applies to the measures to be taken in reference to the use of meats.

The President presented to the Congress for discussion the question of pulmonary phthisis, in its connection with that subject.

Mr. Lydtin, reporter, then took the floor. He first thanked Messrs. Wehenkel and Siegen for the excellent translation they have made of his report, and then presented the essential points of it. He considered, first, the question of the diagnosis of pulmonary phthisis, the difficulties of which have been exaggerated. The first object he had in view was to well establish the diagnosis of the disease, and to that effect he mentioned all the diseases likely to be confounded with it, excluding from the list certain diseases frequently considered as of a tuberculous nature, though in no way related to it. The diagnosis of phthisis in the living or the

cadaver, is no more difficult than that of glanders, especially when the latter affects a latent form. The diagnosis of glanders is, even in this case, often more complicated than that of tubercles in cattle. Upon the cadaver, it is much easier to make out this disease, notwithstanding the numerous forms of alterations that may present themselves. Everywhere marks are found of the influence of a foreign agent, which has determined lesions in all the parts where it has deposited itself. It may happen that errors may be made in the appreciation of the lesions observed, for we are not infallible. But this would be an exceptional case. An absolutely fixed character cannot be given to the phthisis of the ox; a recent and very important discovery has, however, thrown a strong light upon the question, and so to speak, given us a criterion of tuberculosis. The presence of special germs, the bacillus of Mr. Koch, observed with the microscope, finally settles the question of the diagnosis in doubtful cases.

Mr. Lydtin then passed to the second point of the question, and treated of the propagation of tuberculosis. He said that this disease exists quite extensively in all countries of the globe, and that almost everywhere it has reached considerable proportions. On this account, it well deserves the name of *universal panzootic*. In view of its extensive existence, Mr. Lydtin proceeded to inquire into its cause, which he attributed first to heredity, and secondly to contagion.

Basing his remarks on observation and experiment, he considered it as demonstrated that these are the principal agents in the propagation of the disease. Contagion has been both admitted and denied for a long period of time, but long continued experiments had at last established the infectious character of the disease.

The agent of transmission penetrates the organism through the lymphatic blood vessels, but propagates slowly. The lesions produced by the tuberculous germs are first localized, and isolated from the surrounding tissues. They then, by degrees, spread through the organism, while at the same time older lesions undergo successive transformations; they are at first hard

tubercles, which is their earliest form ; after which they become caseous, purulent or cretaceous.

The generalization of the lesions is slow, and several varieties may be met in the cadaver. At times the tubercles are localized, and the flesh has a good appearance. No proof exists that this meat is injurious ; at least, no accidents in man have yet been observed attributable to this cause. When tubercles exist in the organism, and the greatest part of the lymphatic structures are affected, one may say that the meat is dangerous, or at least unwholesome, or of bad quality. In Germany it is then classed in the category as low meat (*viande de basse boucherie*), and is sold as diseased meat. The public is thus notified of the fact. At other times there are purulent or caseous centres, which are softened tubercles. In this case the meat must be rejected, as well as when the affection is so generalized as to show a great number of diseased lymphatic glands, or again, when the tuberculous animal has already lost flesh, or become much altered, through a defect in its power of nutrition.

Mr. Lydtin then asked for the acceptance of all that portion of his report which refers to the consumption as food of the flesh of the tuberculous animals.

Mr. Bonley said the question which we are now considering forms one of the greatest difficulties of practice. It may well be asked, what must be the conduct of the inspector in presence of the cadaver of a tuberculous animal. It is a well established fact that tuberculosis is a dangerous affection for the animals which contract it, and that they can take it not only by the way of the respiraory organs, but also by the digestive apparatus and during the ingestion of food, as well as by inoculation made upon any point of the organism. He recalled the experiments of Tonsaint, the results of which were frightful. The element of virulency does not exist in the tuberculous lesions only, but in all the tissues. The juice of the flesh of a tuberculous animal, even after being heated to $+ 50^{\circ}$ or 60° , that is, at the temperature of roasting meat, has proved itself virulent to the ox, the pig, the cat, rabbit, etc., even when given only in small doses ; large oncs are not necessary. Considering the facts in their worst aspect, there

ought not to be any classification by degrees allowed in tuberculosis; when it exists the use of the meat is dangerous. Mr. Bouley was satisfied that the fact of tuberculosis, whatever may be its degree, should at once determine the rejection of the meat for use.

Tuberculosis in man is certainly contagious. This is a fact known by everybody; the transmission is readily effected from husband to wife. Perhaps one of the conditions of contagion is the infected saliva. Tuberculosis exists very extensively in our countries; it kills one-fifth of the population. He thought that in the business of the butcher one must look for one of the principal causes of the large number of persons affected by phthisis; it is probable that infection through the digestive organs takes place as it does in the experiments of the laboratory. In closing, Mr. Bouley presented the following amendment:

“Tuberculosis being experimentally recognized as a disease transmissible by the digestive organs, and by inoculation,

“The Congress declares that it is the dictate of wisdom and duty, to entirely exclude the flesh of tuberculous animals, from consumption as food by man; whatever may be the degree of the tuberculous affection or the apparent qualities of the meat.”

He was of opinion that owners should be indemnified and would encourage butchers to establish mutual insurance companies.

Mr. Van Hertsen said:—I have received the report of Mr. Lydtin only lately, and I have already noticed that in it notes have been made of all that has already been accomplished by science in France and Germany. He tells us what has been done in Belgium, and what is done in the abattoirs of Brussels, when tuberculous animals are found. These measures have been in use for a long time. He had published them in 1869, and already, at that time, he had adopted conclusions almost identical with those proposed by Mr. Lydtin to-day.

In Brussels, all lean tuberculous animals are seized, as well as animals having numerous and generalized tubercles, or presenting softened, caseous or purulent tubercles, lesions which imply a general organic infection. When the lesions are serious and

numerous, whatever may be the quality of the meat, it is stopped; when the tubercles are localized, and in the state of crudity, the meat is allowed to be used; but in this case, as favoring the probability that it possesses a good nutritive value, it must be sufficiently fat.

This measure has been in operation since the year 1869. As to the danger arising from the use of boiled milk, he recalled a paper presented by him, with Mr. Degive, to the Academy of Medicine of Brussels. He showed the great frequency of tuberculous lesions in the mammaræ of milch cows, and this fact, which he mentions so long ago as in 1868, remained ignored, even more by physicians than by veterinarians. No measures were taken, the Academy having discarded, without discussion, the important hygienic questions connected with the subject.

Dr. Wirtz offered an amendment to conclusion *F* of Mr. Lydtin. On page 146, instead of "that a small part of the body, that the lymphatic glands appear," to read "that a part of the thorax or abdominal viscera; that the lymphatic glands which do not belong to the above named organs show," &c.

Mr. Van Hertsen was of opinion that tuberculosis may spread through the lymphatic system when the disease is yet in its preliminary form. For himself, he had observed that the ganglion situated between the first and second ribs is tuberculous eight times out of ten. This gland, in the determination of the quality of the meats, has a very important part, as it establishes the fact of tuberculosis without the necessity of having the other viscera present to inspect. It is of great value as helping to distinguish tuberculosis from pleuro-pneumonia, upon quarters of meat from which the pleura has been removed, when the chest has been skinned. (This gland he calls, for this reason, the motor ganglion of the inspector).

Mr. Lydtin, reporter, defended proposition *F* of the report. He thought that his view differed little from that of Mr. Bouley. He even believed that by his system a greater number of tuberculous animals would be rejected from consumption. Mr. Bouley still allows the sale of certain meats, on condition of being cooked. But experience had shown him that this method of

proceeding had given imperfect results, no accident having been thus far attributed to it.

He agreed with Mr. Bouley that it would be proper to establish mutual insurance companies, and to indemnify owners. Without indemnity, one cannot be sufficiently severe; diseased animals would be concealed, and there would be fraud in the dealing in tuberculous meats.

Mr. Bouley requested leave to subject his proposition to the vote of the Congress, in order that the principle it involves, which in his view must be the most rigorous and absolute, should be presented; as to the administration, that is the business of authorities.

Mr. Rossignol presented an amendment which reads as follows: "All animals slaughtered for sale, presenting the lesions of tuberculosis, must be seized as meat absolutely unfit for consumption. The cadavers of such animals ought to be submitted immediately to the effect of pyrogenous agents and treated by sulphuric acid, or submitted to a long process of boiling."

Mr. Van Herten proposed to strike from paragraph *F* the words "that the lymphatic glands show themselves yet free from any morbid lesion of phthisis."

The first part was carried by twenty-five yeas, there being fourteen absentees.

The second received fifteen in favor and fourteen against it, nine being absent. In view of this vote, the amendment of Messrs. Wirtz and Van Herten were withdrawn. Several members called for a vote on paragraph *G*. Mr. Rossignol did not wish to be as severe as Mr. Lydtin; the milk of animals suspected of contamination ought not to be infected; consequently he would like to see paragraph *G* withdrawn. Mr. Bouley endorsed this proposition.

Mr. Lydtin said that he only made a recommendation; his advice was to have the milk well boiled before using. He objected to the proposition of Mr. Rossignol.

Paragraph five, thus modified, was unanimously adopted, less five voices.

Mr. Bouley asked for a vote on paragraph *H*, which he proposed to modify as follows:

“It is proper to grant an indemnity for bovines in good condition, considered tuberculous after being slaughtered for market.”

Mr. Rossignol preferred the indemnity for animals in good condition for marketable beasts only.

Mr. Aerts: Indemnity is a just measure only in case of slaughter by order.

Mr. Wehenkel said that, as at present, it is only a question of the seizure of meat found unfit for consumption, and not as a measure of injury to private property with the object of protecting the general public, he cannot entertain the proposition of indemnity. It is a question of goods of bad quality, whose use is prohibited for a purpose it is unfit for; nothing more. The State has nothing to do with it. It ought to indemnify only where, for instance, it deprives an owner, for the general interest, of his chances of the recovery of his sick animal, or the legal use of a good one is prevented for the general interest, but it ought not to indemnify when it only prohibits for an improper use—the exposure for sale of injurious meat.

Mr. Lydtin agreed with Mr. Wehenkel. This is what was done in the Grand Duchy of Baden.

Mr. Muller remarked that the programme of the day had nothing to do with this new proposition. The order of the day being gone through with, there is no reason for continuing that new subject. The President inquired if there were any need of voting on paragraph *H*, or if the discussion was closed. The proposal to close was adopted by a large majority.

The discussion of the question of education being again taken up, Mr. Bouley took the chair and called for a vote on proposition *V*. of the report.

Mr. Quivogne believed that the whole of it should be changed to “The boarding and non-boarding students systems are facultative in the schools of veterinary medicine.” This amendment was adopted.

In proposition *VI*, the first part was adopted unanimously, and the second by a large majority. Mr. Wirtz, in the name of Roll, proposes to add to proposition *VI*, “Veterinary schools ought to have the organization of universities.” The amendment was rejected.

Messrs. Wirtz, Fleming and Liantard presented as an additional article to proposition VI, "It is very desirable that veterinary schools, in all countries, be State institutions." Adopted. The amendment of Messrs. Seissmann and Rabl, putting the number of veterinary professors to eight at least, was not admitted; the number eight was also rejected, and it was decided that it is unnecessary to fix the number in a general manner.

Mr. Bayer said that it was through an error that the reporters had said that in Austria, none of the professors are veterinarians: they are all or nearly all so.

Mr. Quivogne asked that the second part of the first paragraph be stricken out. Adopted.

The first of Chapter VII thus modified, was adopted; the second was also adopted.

Mr. Rossignol proposed to require not less than two years of practice before any nomination to a professorship, or before any nomination to the functions of clinical professor. This was not adopted.

Mr. Quivogne believed that it would be proper to replace paragraphs 1, 2 and 3 by a single one reading as follows: "all positions relating to education shall be awarded after competition."

Messrs. Wirtz and Miller opposed the amendment, and it was rejected.

The third is superceded by the reading of the first, which provides that one must be a veterinarian.

After discussion, it was agreed that the fourth and fifth cannot be decided in a general sense. The discussions then closed.

Mr. Wehenkel read a declaration signed by several members to justify their refraining from voting upon the question of pulmonary phthisis. It says, "considering that it does not appear to them possible to properly discuss and examine so important a subject in so short a time as is at the disposition of the Congress; considering especially that we cannot vote upon the resolutions presented without first having examined the scientific side of the question; the undersigned have abstained from voting

and ask that their reasons for so doing be entered on the minutes.—Signed by Messrs. Siesman, Bayer, Berdez, Leisering, Tomyuk, Fricker, Sussdorf, Roll, Muller, Wehenkel, Danitsch.

The General Secretary, in the name of the Committee of organization and of the Belgian members, thanked the foreign members for their attention and assiduity in following the discussions and labors of the Congress.

Mr. Bouley, President, expressed the hope that the Congress had given ideas that governments will notice, and that the work will prove successful, and greatly encourage the fifth Congress. Once more he tendered his thanks to Mr. Lydtin for his important assistance as an interpreter.

On Mr. Wehenkel's motion, it was agreed that the organization of the fifth Congress, which shall be held in Paris, will be left in the hands of the French veterinarians, who will name the members of the committee in communicating with the members of the committee of the present Congress. He said that it is necessary that organizing members should enjoy facilities for meeting and consequently should be in proximity with each other.

A vote of thanks was proposed by Mr. Lydtin, to the Committee and Bureau of the closing Congress.

The session terminated at 11 o'clock.

NOTICE.

The following circular has been sent by the Department of Agriculture, and it has been thought proper to present it to the readers of the REVIEW, without remark other than to express a sincere wish for the success of the convention, being prevented from making any upon its importance and the necessity of attendance from veterinarians through the country, by our extensive issue of the labors of the International Veterinary Congress, which obliges us also to postpone the publication of many other communications received :

U. S. DEPARTMENT OF AGRICULTURE, }
Washington, D. C., September 21, 1883. }

A convention of representatives of all classes interested in the Animal Industries of the United States will be held in Chicago, Thursday and Friday, November 15th and 16th, 1883, for conference concerning

CONTAGIOUS DISEASES AMONG OUR DOMESTIC ANIMALS.

In addition to addresses and reports, the following topics are proposed for discussion :

1. The extent to which contagious diseases exist among domestic animals in this country.
2. The modes by which they are introduced or disseminated.
3. Methods by which they may be eradicated, or infected districts be isolated.
4. The efficiency of existing legislation relative to such diseases.

It is desired that this convention may be national and thoroughly representative in its character. The time and place have been selected for the convenience of the large number of those directly interested in the questions to be discussed, who are expected to be in attendance at the Annual Fat Stock Show under the auspices of the Illinois State Board of Agriculture, and meetings of a number of important live stock associations to be held during the continuance of this show.

Agricultural, live stock, and dairy associations are invited to send representatives, and all persons interested in breeding, rearing, transporting, importing, or exporting any class of farm animals will be welcomed to the convention.

GEO. B. LORING,
Commissioner of Agriculture.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Revue fur Thierheilkunde und Thierzucht*, *Clinica Veterinaria*, *Veterinarian*, *Veterinary Journal*, *Gazette Medicale*, *Archives Veterinaires*, *Recueil de Medecine Veterinaire*, *Journal de Zootechnie*, *Revue d' Hygiene*, *Revue des Sciences Medicales*, *Presse Veterinaire*, *Revue Scientifique*.

HOME.—*American Farmer*, *Spirit of the Times*, *Turf, Field and Farm*,

American Agriculturist, Country Gentleman, Rural New-Yorker, Ohio Farmer, Breeder's Gazette, National Live Stock Journal, Medical Record.

NEWSPAPERS.—Farmer's Review, Western Medical Reporter, Prairie Farmer, Home Farm, Medical Herald.

PAMPHLETS.—Catalogues of the Veterinary Schools of Utrecht for 1880, 81, 82, De l' Epizootic Typhoide du Cheval, Purpura hemorrhagica, Eau de vie Camphrie contre la Peripneumonic exsudative, Keracele Epicutané, Las de dystocie fœtale, Fievre Vilutaire par M. Coutamme, Circular of Chicago Veterinary College.

BOOKS.—Equine Medicine, by W. Robertson, F.R.C.V.S., Exterieur du Cheval, by A. Doubaux and G. Barrier, Report of the Department of Agriculture and Statistics of the Province of Manitoba for 1882. Horses, their feed and their feet, by C. E. Page, M.D., Contagious diseases of Domestic Animals, Investigations by Department of Agriculture.

COMMUNICATIONS.—A. A. Holcombe, C. B. Michener, R. Huydekoper, W. H. Hoskins, W. Devoe, W. C. Bretherton, H. B. Boyd, W. Critcherson, R. Harrison, P. Z. Calsson, W. Cutting.

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Each volume commences with the April number.

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All communications and books for review to be addressed to the Editor 141 West 54th Street, New York. Anonymous letters and articles will not be inserted. Morbid specimens may be forwarded to the Editor, and with the consent of the owner, will be registered and placed in the collection of the American Veterinary College.

Post Office orders to be made payable to A. LIAUTARD, Editor, through Station G. New York.

As we go to press on the 20th of the month, papers for publication ought to reach us before or on that date.

AMERICAN VETERINARY REVIEW,

DECEMBER, 1883.

ORIGINAL ARTICLES.

DISEASES OF THE HEART.

(Paper read before the N. Y. State Veterinary Society.)

By W. J. COATES, M.D., V.S.

Mr. President and Gentlemen :

Comparatively speaking, diseases of the heart are of rare occurrence in the domesticated animals, and when they do occur are very difficult to diagnosticate, on account of the situation, position and relations of the heart to the chest walls, also the amount of muscular tissue covering the chest walls, and the position of the scapular with the extensor muscles of the forearm filling up the angle formed by the scapula and humerus; nevertheless a physical examination of the chest will determine a great many of the diseases which the heart is liable to, which have been overlooked during life, and only found on post mortem. Therefore we should become familiar with the normal sounds of the heart, and with its relations to the wall of the chest, although we cannot with accuracy mark off the various portions of the heart, valves and blood-vessels, as they are in the human subject, but at least we can get a general idea of the situation, position and relations of the normal heart, which will enable us to detect a number of abnormalities, together with the rational and physical signs or symptoms arising from the various diseases the heart is liable to,

as the following case will illustrate, which recently came under my notice, and well worthy the attention of the members present.

Dr. J. J. Murray, of this city, was called September 3d, 1883, to see a bay gelding, seven years of age, fifteen hands three inches high, as to roaring, with the following history, which is somewhat deficient: The animal was purchased a few months previous, and on the slightest exertion would roar and would become much exhausted after being driven for a short distance; appetite poor: some days would eat a fair quantity, other days hardly a quart. The owner was advised not to treat him, as it would be an expensive pleasure, and nothing more was heard of the animal until September 23d, when the doctor was hurriedly sent for to attend a horse which was very restless and acting similar to a mild case of colic. On arriving at the stable, he found the same horse, which had been sold by the previous owner September 12th, and stated by present owner that ever since he purchased him he had not been in good health; that on being driven a few blocks, he would begin to roar and become exhausted, sometimes staggering from side to side; great difficulty in breathing, and at times showing symptoms of vertigo. After being rested for an hour or two, all the symptoms would subside. While standing in his stall he would paw occasionally, restlessly; would rest his head on the partition of the stall, and when any one approached him, would become excited and toss his head from side to side; has eaten very little, and to-day refused his food. On being backed out of the stall, it was noticed that his jugular veins were pulsating and the heart's action considerably increased. A messenger was sent to me to come immediately and consult in a case of palpitation of the heart. I being away, and not to return till midnight, a second message was received to call in the morning. On arriving Monday morning, September 24th, found the animal presenting the following symptoms, which had slightly abated: Cyanotic condition of the mucous membranes, veins of head and neck distended, pulse irregular and feeble, respiration slightly increased and difficult, temperature 102° F.; jugular veins greatly distended, and pulsating irregularly. Physical examination, on inspection: Cardiac impulse lifting the side of the chest; on pal.

pititation increased, cardiac beat over a large portion of the chest, lifting the hand at each beat on percussion; an increased area of dullness forward, backward and downward; on auscultation a distinct blowing murmur was heard taking the place of the first sound of the heart, and an increase in the intensity of the second sound. There was no dropsical condition of the extremities or other portion of the body.

A diagnosis was made of eccentric hypertrophy of the heart, with tricuspid regurgitation, with prognosis unfavorable.

It was suggested to have the horse sent to the American Veterinary College for the benefit of the surgeons and students, as being an exceedingly rare and interesting case, and to have a post mortem examination made, as the death of the animal was expected soon. Through some neglect, nothing was heard of him until Tuesday evening, when a postal card was received stating that the horse would be sent down Wednesday; but instead of the horse, the heart and a portion of the lungs were sent, he having died during the night in a delirious condition.

Post mortem.—Heart and lungs: Heart enormously enlarged, especially in the horizontal diameter; muscular wall indurated and stiff; weight, eleven and a half pounds; ventricular mass, eight pounds; auricular mass, three and a half pounds; left ventricular cavity about normal size, walls hypertrophied from one and a half to two inches in thickness; right ventricle dilated and hypertrophy of wall one inch and a half in thickness; left auricle dilated and wall hypertrophied; right auricular cavity enormously dilated and walls thickened; both auricular walls three-quarters of an inch to one inch in thickness; mitral valves indurated, opaque, and portion adhering to walls; chordæ tendinæ retracted; tricuspid valve thickened, three or four nodules on under surface, and chordæ tendinæ retracted; semilunar valves normal. On water test, the valves were so insufficient as to admit of a large-sized finger. Lungs—Portion hypostatic and bronchia filled with frothy mucus.

It is to be regretted that an examination of the abdominal organs was not made.

CASE No. 2.—An eminent physician of this city has been driving a bay gelding, nine years of age, on his daily visits for a

year or more. On September 30, 1883, the Doctor used him under the saddle and found that his breathing became very laborious and so exhausting that he could hardly get back to the stable. He was allowed to rest for a week when, apparently all right, the animal was again ridden and developed the same symptoms, but more severe, a cardiac palpitation being observed.

Dr. Liantard was sent for, and ordered the horse to be sent to the hospital, where he could make an examination of the heart at his leisure. On admission to the hospital, he was hardly able to walk, staggering from side to side, similar to an animal suffering with influenza with great muscular debility, great dyspnoea, pulse, full strong, bounding and regular; temperature, 101° Fah., schneiderian membrane injected; appetite greatly impaired. On physical examination, detected a hypertrophied condition of the heart. Inspection, negative; on palpitation increased cardiac impulse extending over a large portion of the chest. On percussion, an increased area of dulness extending to the right rib. On auscultation, the first sound of the heart dull and prolonged, and slightly increased in intensity; second sound increased in intensity. He was placed in a dark stall, free from excitement, and ordered sedatives as the indications of the case required. All symptoms abated in a day or two, and apparently all right again until exercised, when the same symptoms appeared, but not so severe, and put under the same treatment; was then sent to the country with advice to owner to dispose of him to the best advantage, as he was unfit for the use of a physician and may possibly do slow work for some time to come.

CANINE PATHOLOGY.

BY PROF. R. H. HARRISON, D.V.S.

Canine practice is rapidly becoming an important feature in the practice of veterinary medicine and surgery; and to those interested in the study it proves remunerative, and at the same time opens up a field of pathological research very interesting and instructive.

Dogs in this country are more highly thought of, are better

bred, and are more valuable than formerly. Especially is this the case with sporting and pet dogs.

The following cases have been taken from records made during my practice in Lowell :

CASE No. 1—*Extirpation of the Eye*.—This patient, a small female Skye terrier, was brought to the infirmary with a lacerated wound of the globe of the left eye. The injury was received from the bite of another dog. The vitreous humor, together with the ruptured lens, was escaping through the rent, which extended from the corneal margin to nearly the centre of the pupil.

Consulting with Dr. Benoit, a physician who has a large ophthalmic practice, it was thought best to remove the globe, which was performed by dissecting away the orbital and conjunctival mucous membrane, exposing the muscles and dividing them, together with the optic nerve, the globe being transfixed during the operation, with forceps. No anæsthetic was used, on account of the age and small size of the patient, also the frequency of cardiac irritability shown in aged dogs. No great pain was manifested, except when the nerve was cut. The after treatment consisted in keeping the cavity of the orbit clean with a very weak solution of carbolic acid.

As a result of the operation, from nervous shock, the bitch aborted, and for several days exhibited slight reacting fever.

In two weeks' time the parts had healed, leaving the lids only slightly separated, for adhesive inflammation had been stimulated by scarifying their inner surface, while the lids were brought in apposition with sutures.

The owner desired to have a glass eye inserted, but it was not advised, for the experiment was tried in a previous case, and it was found impracticable, the glass eye acting as a foreign body, although removed and cleaned. To obviate an ugly-looking stump, especially in a short-haired dog, it would be well to approximate the lids and promote adhesive inflammation, being careful to keep the cavity free from pus.

CASES Nos. 2 & 3—*Epithelioma of the Membrana Nictitans*—*Enchondroma of the same*. The first was a brown spaniel, with

the membrana nictitans covering a little more than half of both eyes, very red in color, greatly tumified, and giving rise to serious conjunctivitis, and a continual flow of tears. This state had been present for over a year; the membranes, at first pale and slightly swollen, had slowly increased in size. Several oculists and veterinarians had been consulted, and an operation was considered dangerous, as it would result in loss of sight.

An operation was advised and finally consented to; it consisted simply in grasping the enlarged membrane with bull-dog forceps, and making the entire removal with the curved scissors at one cut. The slight hemorrhage following the operation was readily checked with cold water; the after treatment was a simple wash of chloride soda 3 i. to Oi. water. A few days afterwards, no one could tell that an operation had been performed.

Having the tumors examined under the microscope by a medical friend, the report was: "The tumor shows a marked increase in its epithelial covering, being about eight times thicker than normal. There is a hypertrophy, and increase in the number of mucous and lymph follicles of the conjunctiva. At the thickest part of the tumor, noted great hypertrophy of epithelium with alveoli filled with epithelial cells." Consider it a true epithelioma.

The second case was a brindle bull dog, two years old, affected with enlarged membrana nictitans, for several months, producing similar symptoms as mentioned in the former case. The appearance of the tumors was similar, except that in this case the thickness was more uniform, and not involving one part as before. A similar operation was performed, the case doing equally as well.

The examination of these tumors resulted in their being denominated "Enchondroma." "The hypertrophy of the mucous membrane was absent, the alveoli filled with epithelial cells wanting, but a marked increase in the cartilage cell formation was very apparent."

CASE No. 4—*Porcupine Quill in Membrana Nictitans*.—A hound was brought for observation, "that had a sore eye." It had been attended by another veterinarian, and astringent washes prescribed.

Making a careful examination, much conjunctivitis of the right eye was present, photophobia well marked, the membrana nictitans protruding slightly, reddened, and somewhat swollen. When left to himself, the animal would rub the eye vigorously with his paws, seemingly in an agony of pain, uttering sharp cries the while.

Examining the eye again, nothing was at first observed that would give rise to such severe irritation. At last, separating the lids, and making pressure on the globe to develop further the membrana nictitans, a minute black speck was noticed, which disappeared when pressure was relaxed. This was seized with a fine pair of forceps, and much to our surprise a small porcupine quill, about half an inch long, was drawn out. From this time forward the patient did well.

CASE No. 5—*Removal of Dislocated Lens, or Floating Cataract.*—This patient, a well-bred p^{ug}, about four years old, was sent to the infirmary with the following history: Was the property of a lady, and was reported to have been in a like condition for a year, the time she had owned him; had observed something floating in the left eye, and at times thought the dog was blind in that eye. Sometimes the eye would appear perfectly clear; at others noticed a white body covering the pupil.

A diagnosis was made of dislocated lens, and after consultation with Dr. Benoit, an operation was advised and consented to.

The animal was prepared by dieting, and a solution of atropia sulph., gr. $\frac{1}{4}$ to oz.i water, applied for two days.

The operation was performed under the influence of ether, and consisted in removing the lens by a hook, through an opening made at the superior margin of the cornea with a Bead knife. A compress of cold water was applied over the eye, and the same solution of atropine used for several days.

The wound healed kindly, and the eye, when examined by the ophthalmoscope, showed the retinal vessels and entrance of the optic nerve very plainly. The pupil responded freely and promptly to the influence of light.

The lens enclosed in its capsule was firm in consistency, and opaque; the capsule was semi-opaque on its anterior and posterior surfaces.

EPITHELIOMA OF THE CLITORIS.

BY THE SAME.

This patient, a chestnut mare, 16 years of age, and 15 hands high, was brought to the infirmary with the following history: She had been owned for nine years, and the first symptoms of any disturbance was noticed four years after she was purchased. The mare developed into a very bad kicker, and seemed to be continually in rut.

The least stimulus being applied, either the hand laid on the hip, or when anything touched her hind quarters, or the near approach of another horse would cause the most intense venereal excitement.

This state of affairs lasted a year, when a growth was observed protruding between the lips of the vulva, which rapidly increased and attained the size of a hen's egg, and was removed by an *ecrasin*.

This operation is reported to have afforded relief, the animal becoming more gentle, an *æstrum* occurring at regular intervals.

In 1881 the tumor again commenced to grow and the former symptoms were present, although they were not so intense as before. A similar operation was resorted to with apparent relief.

When examined by me a large tumor was observed, the size of a cocoanut, protruding from the vulva. Its external surface was excoriated, and bleeding at the slightest touch, and a very offensive discharge was present.

Separating the lips of the vulva, the pedicle of the tumor was about an inch and a half in circumference at its base, and occupied the place of the clitoris—titilation of the base caused erection of the entire growth, it becoming filled with blood and very sensitive to the touch. At such times micturition would be almost constant. The operation consisted in the application of the elastic ligature, applied as far down on the base as possible.

This was considered the best treatment, as the tumor could be removed without loss of blood, and the *secondary slough* which often follows this manipulation, was thought important.

The animal was operated upon standing up. The modes of restraint were a blindfold and twitch, with the hind extremities hobbled.

Five days after the operation, the mare being worked during the interval, the tumor had so nearly sloughed that it was removed with slight torsion. The part below the ligature when grasped by the forceps, evinced no pain and showed a round white patch surrounded by healthy tissue. This was dissected away to hasten the case along.

The after treatment consisted in cleanliness with carbolic acid solution, and a dressing powder of carbo animalis containing a mild astringent. The part healed kindly in two weeks, no trace of the operation was visible, and the clitoris was absent.

The operation was performed in the early part of May of the present year, and about ten days ago the animal was carefully examined and no appearance of a return of the growth was detected.

The tumor was examined by a microscopist and his report was that the examination was not so satisfactory as desired, for the reason that it had shrunk and dried so much during ligation, but he considered it an epithelial cancer of the mulberry variety. He also noted erectile tissue throughout. The very satisfactory use of the elastic ligature in this case is worthy of note, and its special adaptation in similar cases is highly recommended.

Another point of interest, and by no means common, was the erection of the tumor when any stimulant was applied.

REMARKABLE TEMPERATURE

IN A HOLSTEIN BULL-CALF, WITH SPINAL DISEASE CAUSED
BY INJURY.

BY C. C. McLEAN, V. S., (Ontario.)

On the morning of August 27th, a Holstein bull, aged five months and three weeks, showed the following symptoms. There was slight indisposition, with general twitching of muscles, and when he walked, the posterior extremities were lifted much higher

than natural, and in a very straddling manner. Temperature, 102° , and pulse, 90. He was removed to another apartment on the afternoon of the same day, and on seeing him again found him lying down and unable to rise. The use of a pin disclosed loss of sensation, posterior to the middle lumbar region. It was then ascertained that a visitor and the attendant had seen another bull jump on his back and break him down.

August 28th. Temperature, 103° ; pulse, over 90. Lies well on the sternum; muzzle moist; slight appetite; bowels somewhat costive; urine normal, but passed in a dribbling manner; apparently in no pain. We have him turned over every three hours.

Aug. 29th. Symptoms the same, with the exception that there is slight sensation when pricked with a pin, and he can use his tail to remove flies; no twitching.

Aug. 30th. Temperature, 105.75° ; pulse, imperceptible at any point; appetite still fair; bowels move freely from purgatives.

Aug. 31st. Temperature, 106° ; pulse still imperceptible; other symptoms unchanged.

Sept. 1st. Temperature, 105° ; wants to lie stretched out on his side; excretions normal; appetite fair; holds his head to the left side; otherwise, no change.

Sept. 2d, 9 A. M. Temperature, 106.75° ; respiration hurried; pulse imperceptible at any point; pleurosthotonos well marked. Two hours later, respiration, 100; temperature, 109° ; violent twitching of all the muscles. At 4 p. m., his temperature registered $110\frac{3}{5}^{\circ}$ by two thermometers, (43.6° C. by one,) respiration, 72; and an hour later he died without a struggle.

Autopsy—By Drs. McLean and Huidekoper, made a quarter of an hour after death. Animal on right side; but little bloated, as the rumen had been punctured a short time previously; temperature still over 110° F. Turning the calf on its back, we opened the abdomen and removed the intestines. The peritoneal cavity was in an apparently normal condition, but unpleasantly hot to the hand. The small intestine was empty and pale. The colon contained a moderate quantity of bloody serum, with a little gas, but presented no lesion except a few spots of

congestion. The rumen contained a large semi-liquid mass of food and with the other stomach, was free from lesion. The liver, spleen, kidneys and lungs were absolutely free from pathological alteration. The ventricles of the heart and the aorta were empty; the right auricle contained a very little liquid blood, which formed rapidly into a firm clot. A thorough examination was made of the brain, cervical cord, posterior dorsal, and lumbar cord. The first were normal, but at the commencement of the lumbar region there was a trace of congestion, which increased at the fourth lumbar vertebra. From this point there was considerable softening of the sheath and spinal nerves, with but little fluid. The grey substance (horns) of the spinal cord in the last three lumbar vertebræ was completely disintegrated. The vertebræ showed no signs of injury. Under the skin in the lumbar region there was a slight effusion, due probably to the blister which had been applied.

Query ?—To what was due this extraordinary temperature: and why was there a partial return of sensibility and movement of the hind quarters, during complete degeneration of the gray substance ?

TEXAS CATTLE FEVER.

BY P. Z. COLSSON, V. S. (Mobile, Ala.)

Of late I have read several articles in *THE VETERINARY REVIEW* on the above disease.

The disease is called in the South by several and many names—to wit: Texas cattle fever, Spanish fever, splenic fever, acclimating fever, Muir ill, etc.

Fortunately, with us, the disease is not communicated to our native cattle.

I have treated cattle in several herds where there were some eight or ten head that were not acclimated. Also in a quarantine stable containing twenty-four head of imported Jerseys. In the first-named herds only one at a time were taken ill. On one occasion only, there were two ill at the same time, and several

months elapsed before any other animal in the same herd was taken ill of the disease.

In the case of the imported cattle, of the twenty-four head that were in quarantine during the space of seven days, six head took sick with the disease, of which three died and three recovered. The three that died were already passing *red urine* when I was called to see them by the herdsman.

I gave the healthy animals, twice or thrice daily, a preparation of chlorate of potassa, which seemed to check the spread of the disease. After the cattle that were sick had recovered, I discharged them, and was not called in again. I concluded there were no more taken ill, but a short time ago I was informed by the herdsman that another, an old cow, had taken ill with the same disease that the three had died of—*red urine* (claret color). I do not know who treated this case; she died. My experience is, that whenever the red water is present there is no cure for the disease.

As to frost checking the disease, that is not so in the South. I have treated animals (cattle) at all seasons of the year, before, after and during frost, and heavy frosts at that (such as we have here.) I find in some cases that an animal has been affected with the disease twice; this in two cases only.

Very frequently an animal may pass the first year without the slightest illness, but in the second year succumb to the disease.

The duration of the sickness is generally from three to five days. If they pass the fifth day, they recover, if properly cared for. I notice that if any imprudence be committed, there will be some indigestion, which is easily brought on, by the owner or herdsman being anxious to see the animals eat plenty.

Cattle brought here from North Alabama, North Mississippi, Tennessee, Kentucky, or any State in the Union, north, east or west, are not safe in this part of our country.

GLANDERS IN ILLINOIS.

(Reprint from the Report of the Illinois Board of Health.)

(Continued from page 308.)

CONTAGION AMONG FOOD-PRODUCING ANIMALS.

In this connection it may not be out of place to submit the following correspondence to the Board :

CONSULAT DE FRANCE, CHICAGO, }
76 MONROE ST., May 18, 1883. }

DEAR SIR :

I would like to know what powers the State Board of Health is invested with by the State laws, or what measures are provided for by the statutes in order to check the spread of contagious diseases among the animals, and also what steps you have to adopt in order to protect the great agricultural interest should a disease of that kind be spreading at one point, either inside or outside of this State; what are your rights in regard to the roads and markets, public or private, like the market of the Union Stock-Yard Company, of Chicago; how many agents you have to dispose of and how they enforce the State laws, and what is their salary.

I should also be very much interested in learning what money is provided for the expenses incurred in such a case, and whether animals and barns are cared for, disinfected or destroyed at the cost of the owner or the State.

All printed regulations, circulars or advice you would be able to forward me would very much oblige me.

Thanking you in advance for the kind assistance you would favor me with, I have the honor to be, dear Sir, your obedient servant,

EDMOND BRUWAERT,
French Consul.

JOHN H. RAUCH, M. D.,
Secretary of the State Board of Health.

These inquiries seemed to me obviously for the purpose of securing information to be laid before the French Government

as the basis for legislation concerning the importation of American food animals and their products; and in the present hostile attitude of such legislation by some of the Continental powers, it seemed worth while to make the reply as comprehensive and exact as the time at my command would permit. I think I have shown in the following reply that the interests both of the producer and the purchaser are well protected under the present system.

ILLINOIS STATE BOARD OF HEALTH.

OFFICE OF THE SECRETARY,

SPRINGFIELD, May 30, 1883. }

MY DEAR SIR:

I beg to acknowledge the receipt of your communication of the 18th inst., asking certain questions concerning the State Board of Health, and the measures provided by law to check the spread of contagious diseases among animals; and regret that the pressure upon my time has been so great as to delay reply until now.

Your inquiries involve, as I understand them, the general question of the conservancy of food-producing animals from contagious diseases, with specific reference—

First, to the power and authority of the State Board of Health in the matter of quarantine, both of exclusion and of isolation; in the sanitary control of roads, markets, stock-yards, etc., and in the direction of agencies for the enforcement of the laws on these subjects.

Second, with reference to the protection of the agricultural interests from the effects of the introduction of contagion or infection among animals from without, or its spread within the State.

The second section of the Act of May 25, 1877, creating the State Board, and from which section the Board derives its powers, reads as follows:

“SECTION 2. The State Board of Health shall have the general supervision of the interests of the health and life of the citizens of the State. They shall have charge of all matters pertaining to quarantine; and shall have authority to make such rules and

regulations, and such sanitary investigations, as they may from time to time deem necessary for the preservation or improvement of public health; and it shall be the duty of all police officers, sheriffs, constables and all other officers and employees of the State, to enforce such rules and regulations, so far as the efficiency and success of the Board may depend upon their official co-operation."

This section is held to clothe the State Board with ample authority in all matters affecting the public health; to entrust it with the fullest control of quarantine; to empower it to conduct sanitary investigations, and to make rules and regulations based thereon; and to place at its disposal "all police officers, sheriffs, constables, and all other officers and employees of the State to enforce such rules and regulations."

It will be seen from this that the existence of any contagious disease among food-producing animals would make it competent for the State Board, in its discretion, to investigate the facts—as to cause, extent, etc.—and to make the rules and regulations necessary for its suppression.

Such measures may involve condemnation and slaughter of diseased animals; the isolation of the suspected or compromised; the disinfection, or—where disinfection may be insufficient—the destruction, of infected buildings and articles; and all other action necessary to eradicate the contagion. If requisite, quarantine of exclusion may be declared for the protection of threatened localities. Losses and expenses incurred in carrying out these measures are a charge upon the township or county in which the contagion exists.

The agencies actually employed in the enforcement of such measures are, usually, the local health authorities—municipal and village boards of health, as the case may be, although the language of the Act places all police officers, sheriffs, etc., at the disposal of the Board for this purpose.

Aside from the public health or sanitary aspect of the question, the protection of the agricultural interest from the introduction or spread of contagious disease among animals, is also the subject of special legislation.

Section 258, of the first division of the Criminal Code (Chap. 38, Revised Statutes of Illinois, 1880), provides that any person who shall knowingly and willfully bring, or cause to be brought, into this State any sheep or other domestic animal infected with contagious disease, or who shall knowingly and willfully suffer or permit sheep or other domestic animals infected with contagious disease to run at large, shall be fined in any sum not exceeding \$100, and shall be liable in a civil action for all damages occasioned thereby.

An act of the 32d General Assembly, approved May 31, 1881, creates the office of State Veterinarian, whose duty it is to investigate any and all cases of contagious or infectious disease among domestic animals of the bovine species in this State. It provides for the quarantine and slaughter of animals in case of an epidemic—Sec. 2; for the appraisement of slaughtered animals—Sec. 3; for the prohibition of the importation of cattle from infected localities—Sec. 4; for penalties for neglecting to report contagious diseases—Sec. 5; for official reports by the State Veterinarian—Sec. 6; for payment of claims for slaughtered animals—Sec. 7; for the compensation of the State Veterinarian and for the appraisers' and physicians' fees—Sec. 8; and appropriates \$8,000 as a contingent fund for the purposes of the Act. From the prominence given to pleuro-pneumonia (*pleuro-pneumonic contagieuse de la bete bovine*), in the text of the Act, this is generally known as the "Pleuro-Pneumonia Act," but as you will see from the copy which I have requested State Veterinarian Paaren to send you, all contagious or infectious diseases among animals of the bovine species come within its purview.

In addition to these two, which are still in force, the ravages of that form of anthrax known as the Texas, or Spanish, or splenic fever, led to the passage, in 1867, of an act to prevent the introduction of Texas or Cherokee cattle into Illinois. This, being found imperfect, was amended in 1869, but, after the constitutionality of the amended act had been twice affirmed in the State courts (*Yeazel v. Alexander*, 58 Ill., 854, and *Stevens v. Brown*, 58, Ill., 289), the United States Supreme Court held that a similar law of Missouri was repugnant to the Federal Constitu-

tion, and overruled the Illinois decisions, (*Railroad Co. v. Husen*, 5 Otto, 465). The act was thereupon declared to be unconstitutional by the Illinois Supreme Court in the case of *Salzenstein v. Marvis*, 11 Chicago Legal News, 357, and has since been a dead letter. However, all that it was sought to do by this act is fully recovered by Sec. 258 of the Criminal Code and by the "Pleuro-Pneumonia Act."

Recent outbreaks of glanders in several portions of the State have led to the introduction in both Houses of the present General Assembly of a bill amending the latter Act so as to include horses, mules and asses within its scope. As there is every prospect of this bill being enacted into a law, I send you a copy of it, marked enclosure "B."

A good illustration of the practical working of the State Board of Health Act is afforded in recent action had upon the outbreaks just alluded to. The preliminaries upon which the interference of the Board was based are detailed upon pages 9 and 10 of the accompanying copy of the report of the quarterly meeting of the Board, April 12 and 14, 1883, enclosure marked "C."

It should be borne in mind that the State Veterinarian had no authority to act under the law, which confines him to animals of the bovine species; nor was the public health threatened by an infected food-supply. The disease, however, being one capable of affecting the human family—having, in fact, caused two deaths in one locality, the State Board of Health, by virtue of authority vested in it by the second section of the Act of 1877, already cited, had ample warrant; and Dr. Paaren was at once dispatched to the infected region. Subsequently, a similar course was pursued in five other counties of the State. A copy of Dr. Paaren's instructions, marked "D," is enclosed. The same general course was pursued in all these cases, namely: An investigation to determine the character and extent of the disease; the appraisal, condemnation and slaughter of all diseased animals; the isolation of those which had been exposed; the disinfection or destruction of all infected property; and an interdict upon the sale, removal or other disposition—except by destruction—of all horses, mules or asses owned by those compromised.

Such of the expenses incurred as are not legitimately a charge upon individuals, townships or counties, or defrayed out of the contingent fund appropriated by each General Assembly for the use of the State Board in preventing the spread of epidemic contagious or infectious diseases.

In conclusion it should be observed that while the State Board of Health is vested with the power and authority already described, in practice its functions are largely those of a co-ordinating, directing and advisory body. Upon emergency it may, and does, assume entire control, and may formulate and enforce whatever measures it deems necessary for the preservation of the public health, as for example, in its dealing with yellow fever during the epidemics of 1878-79, and with small-pox during the past two years. What it then did with reference to those diseases it would be entirely competent for it to do with reference to cattle plague, or rinderpest, or Texas fever, should the emergency arise, as is shown by its action in the glanders' outbreaks.

In the majority of instances, however, the local health authorities, supported by the power and authority of the State Board, are able to deal with the questions and conditions which ordinarily arise, without appealing to the Board to assume control.

A marked instance of the practical efficiency of a local health authority is afforded by the history of the Texas fever in 1868. At that time I was Sanitary Superintendent of the city of Chicago, with supervision and authority, for sanitary purposes, of an area of five miles beyond the city limits. The first fatal case of the fever was reported in the Union Stock-Yards on the 25th of July; another death occurred on the 29th, and on August 1st other cases were detected. By this time the health officer was investigating the outbreak at the Stock-Yards; one of the most efficient of my sanitary Inspectors, with his policeman, had been placed in charge of the threatened area within the city limits, and I was visiting the Stock-Yards daily and the slaughter-houses twice a day. A quarantine of exclusion was rigidly enforced against all cattle from infected districts, whether native or Texan; and, in order to protect other points, the removal of animals, concerning whose condition there was any doubt, was strictly

prohibited. A thorough system of inspection was instituted, employing a force of twenty-one individuals, under whose surveillance all markets, shambles, etc., were placed; and in a few days the entire beef-supply of the city and the cattle trade were under the complete control of the Chicago Board of Health; the spread of the disease was arrested; confidence was speedily restored, and I have never heard of a case of the disease being caused by cattle shipped from the Stock-Yards after the system of inspection was inaugurated.

Regretting that I am unable at this time to devote more attention to the subject of your inquiry, but trusting that the foregoing may suffice for your present purpose, I am, my dear Sir,

Very truly yours,

JOHN H. RAUCH, M. D.,

Secretary.

EDMOND BRUWAERT, Esq.,

French Consul, Chicago, Ill.

EDITORIAL.

CHICAGO CONVENTION.

In our November number we printed a circular issued by the Department of Agriculture, containing an invitation from Commissioner G. B. Loring, tendered to all who are interested in the subject of contagious diseases amongst domestic animals, to be present, but we were prevented by the crowded condition of our columns at that time from offering such comments as we desired upon the matter in hand. The convention met, as arranged, and we can now glance at the work they have accomplished.

Among all the gentlemen who have been called to fill the position of Commissioner of Agriculture there certainly never was one who seemed to take so much interest in that branch of his department which includes veterinary medicine, and while it may not be assumed that it was essentially with reference to this science that the Chicago Convention was called, it must be conceded that, after all, the most important part of the results ac-

complished on that occasion was most intimately connected with the work of veterinary sanitary medicine. In his endeavors connected with the matter, General Loring shows his appreciation of the fact that on the healthy condition of the live stock depends greatly the national wealth of a country.

From the concise reports which we have received and the accounts communicated by our correspondents (which we will find room to publish at an early date) the cause of veterinary science was well represented, by among others two governmental veterinary authorities, viz: Prof. J. Law, President of the Treasury Cattle Commission, and Dr. Salmon of the Agricultural Department. The former gentleman read a paper "On the Contagious Diseases, and the Means of Suppressing and Extinguishing them;" the latter on a topic perhaps still more important in a sanitary point of view, "*The Prevention of Contagious Diseases of Animals.*" We understand that Drs. E. F. Thayer of Boston, Gadsden of Philadelphia, Murray of Detroit, Detmers of Chicago and State Veterinarian Paaren were also there as representatives of veterinary interests. It is to be regretted that the Eastern States were not more numerously represented. Unavoidable circumstances may have prevented a few from being present, amongst whom we count ourselves, and we fear that a grand opportunity has been lost of presenting [before a large public—an almost national audience indeed—an interest of the greatest magnitude, and most intimately connected with the topic discussed at the Convention, and which the nation must shortly recognize and institute practical measures to foster and promote. We refer to the subject of veterinary education—a subject scarcely considered or recognized by the general public, but which must be comprehended and appreciated before any steps can be taken leading to measures of protection from the dangers to which the people are exposed through the omission of necessary precautionary means without which it is simply useless to hope for the suppression and prevention of contagious diseases.

A careful reading of the transactions and minutes of the meetings fails to show us anything bearing upon this subject. We read beautiful statements and able papers from the gentle-

men present on pleuro-pneumonia principally, as to the methods of dealing with it when present, but nothing more.

If the Fourth International Veterinary College, held recently in Brussels, was right in adopting a resolution upon the organization of sanitary veterinary service, which declares that this, once organized, *ought to employ the greatest number possible of veterinarians*; and again in the discussion on veterinary education, expressing the "*desire that veterinary schools in all countries be State institutions*;" and if it is proposed to deal with contagious diseases as proper sanitary medicine demands, has not the time come for our General Government to provide for the bringing together of the greatest number possible of veterinarians to consider the question of establishing State institutions for the thorough education of practitioners in veterinary science?

We have no doubt that if the attention of the Chicago Convention had been directed to this important subject General Geo. B. Loring would not have remained blind to its pressing claims, nor would he have refused to lend his powerful official aid and influence to the promotion of means for protecting the immense amount of private and national wealth represented by our domestic animals.

NEW YORK STATE VETERINARY CONVENTION.

We have at various times, in previous numbers of the REVIEW, called the attention of our readers to a movement which, started in some of the Western States, would probably extend itself toward this part of the country, and which might prove to be of great advantage to the veterinary profession, and tend in an important degree to the advancement of veterinary medicine in the United States. This movement consisted in the inauguration of a series of State Veterinary Conventions, with the object of forming State Veterinary Associations, the object of which was then supposed to be the establishment among the practitioners of the States of a feeling of harmony and union, which could not fail to be of great general advantage, and which might not only newly verify the old proverb, that "union is strength," but go

far to prove its applicability to the members of a profession which, still in its infancy, as it is with us, is so much in need of friendly feeling among its members.

To what extent these organizations have been successful, and what amount of good they are likely to produce, we are not yet informed. They are too young; their doings are not made sufficiently public; and as we have already said, there were so many difficulties in the way of perfect agreement and of the removal of various existing grounds of discord, that it was thought that the great need of large concessions on the part of all concerned, would probably prove an insurmountable obstacle, which if not entirely removed, might render the attempt, if not quite abortive, at least very uncertain, as to any fair promise of ultimate success. Conventions have been held from Illinois through to Pennsylvania, and the movement had spread to the "Excelsior" State, New York, when through the call of some of the veterinarians of New York City and Brooklyn, a convention was called to be held in the Empire City, on the 24th of October. It would seem that if there was a place where success was sure to follow the attempt, New York was to be that place. The center of veterinary education, with her veterinary colleges and her societies, half of the work was already done. But through some unfortunate error, the invitation to harmony and union has so far proved a signal for wider separation, and we greatly fear that it will remain so. The great difficulty is found in the fact, that there has been already in existence, for some length of time, an incorporated State society, which, though counting its members only in small figures, yet proffers its membership to any person, qualified practitioners or otherwise, desiring to join it, either as active, or licentiate members. This society has maintained the form of regular monthly meetings, and though it may not have sought to attract public notice to its movements, has done and is yet doing, all that can be expected or is required of similar institutions, and it will doubtless keep on doing so, notwithstanding the obstacles which may be laid in its way, and the slurs which may be, more or less wisely, cast against it and its members. The existence of this society, which, we believe, counts in its membership a ma-

majority of the practitioners in and around New York and Brooklyn, has been the *pomme de discorde*. The question lies between giving it recognition or ignoring its existence.

Had it been recognized, and its constitution and by-laws discussed and re-adjusted by the members of the convention, the whole difficulty would, in our opinion, have been avoided, and a large and respectable State institution could have been constructed from the materials already in existence. Ill-feelings and jealousies now prevailing might have been annihilated, and New York might once again prove herself worthy of her name and position. The tactics resorted to at the ballot box, the packing of the house with persons who could not afterwards have continued their membership and who were called upon to vote and to sign the minutes of the meeting, are practices commonly used, it is too true, in the political wrangles of the primary meeting, but it is greatly to be regretted that they should find place in the present instance. To those who know themselves the guilty ones is due what by many is considered the failure of the convention, and of the organization of the so called State Veterinary Medical Association.

“THE QUACKS MUST GO.”

These are the last words of an article printed in the *United States Veterinary Journal* at the end of some remarks headed “New York Association,” embodying a *request* from the managers of that publication to the various State Associations to send delegates to a national convention to be held in Chicago, on December 12th, 1883, having in view the object of forming a United States Veterinary Medical Association. (See U. S. V. J., December number, pages 228-232).

When the so-named convention in the State of New York was called at the suggestion of said journal, signed by a number of graduates of New York and Brooklyn, a certain number of gentlemen, who for some time back had been meeting under the privileges of their act of incorporation as members of the New York State Veterinary Society, presented themselves

and offered their objection to the formation of a second Association so long as one was already in existence. The society and its labors were entirely ignored, the objection being voted down by packing the meeting with gentlemen who were not members of the profession and who, on that account, could not be admitted afterwards as members of the Association, and still they claim to have been organized.

From this are we to infer that the other Associations of Wisconsin, Pennsylvania, Ohio, Michigan, etc., were formed in the same manner?—if they were not, it must be due only to the respect that the veterinary practitioners of these States must have had for the welfare and future elevation of their profession.

And still these State Associations, which we understand have thus been organized at the suggestion of the *United States Veterinary Journal*, are *requested* to send delegates to form a United States Veterinary Medical Association.

Over twenty-one years ago, a national institution was formed. Since its organization it has had annual and semi-annual meetings regularly, notwithstanding that its large number of members are scattered almost all over the Union, and its roll-call is answered by veterinary surgeons from the States of New York, Maryland, Alabama, Connecticut, New Jersey, Missouri, Pennsylvania, Rhode Island, Ohio, Illinois, Massachusetts, Kansas, Maine, South Carolina, Iowa, California, New Hampshire, the District of Columbia, Wyoming and Dakota Territories—all being graduates from the English, German, French, Canadian and American schools—and its existence was recognized at the Fourth International Veterinary Congress. She, in fact, represents a *national* nucleus which must become the center of a large American Association, and her age is evidence of her right to a name justly earned by years of honest labors in behalf of the profession.

And still with all these facts and past history, the officers of the *United States Veterinary Journal*, at the suggestion of which the State Associations was formed, *request* them to send delegates to form a National Veterinary Medical Association.

It seems to us that the time has indeed come for the veterin-

ary profession of the country to show these gentlemen, well meaning though their intentions may be, that there are enough veterinarians in good standing in the country to manage their own affairs without being interfered with or advised by others whose interests might be interpreted as being more in behalf of their monthly publication than in that of the profession. Above all, we deem it to be the duty of all those who already belong to the United States Veterinary Medical Association, which is a national veterinary medical institution, now in its twenty-second year of existence, and who as members of the newly formed State Associations may be present at this intended National Convention—if it takes place—to protest against the formation of any new association, and if their claims be ignored, to withdraw from an organization which could not have a national character, being represented only by delegates of but little more than a *half-dozen States*. And, last of all, it seems to us also necessary for the present officers of the United States Veterinary Medical Association to take the necessary steps to protect the interests of the body they represent by all the means possible.

If any good can be derived from the intended convention, all that can be expected is that more veterinarians can be induced to send their names for admission to membership to the old Association, and by thus having a larger number of representatives in the different States, the meetings could be held in places other than those where it has been found necessary to have them, so far, on account of the limited number of members belonging to it that reside outside of the Eastern States.

The constitution of the United States Veterinary Medical Association authorizes the call of a special meeting under special provisions. We consider it a duty of the officers of that Association to call such a meeting; to invite the delegates of the veterinary associations now organized, to be present, and to meet at an early date in a central city of the Union, Cincinnati, for instance, or, still better, in the Capital of the United States at Washington.

AMERICAN VETERINARY COLLEGE. HOSPITAL RECORDS.

By W. D. CRITCHERSON, D.V.S. (House Surgeon).

PUNCTURED AND LACERATED WOUND OF THE RIGHT THIGH.

On July 9th, a brown gelding, ten years of age, was admitted to the hospital with the following history:

Several days before, while being driven, he became frightened at some object by the roadside, and ran away. He was stopped while going down hill, one of the thills puncturing the off hind leg at that time.

A non-professional man being near by at the time, was called and sewed up the wound. The parts, since the occurrence of the accident, had been showered with cold water and bathed with arnica and rum. When admitted, the horse was very lame, with excessive knuckling at the fetlock. There was an abundant discharge of a thin, purulent fluid, from a T shaped wound in the lower portion of the posterior crural region. The leg was greatly swollen, with very slight flexion of the hock. Interruptured thread sutures had been employed to bring the lips of the wound together. The length of the wound was seven inches. Transversely it measured five inches. Depth twelve inches, passing through the fibers of the posterior and internal crural muscles. Several of the sutures were removed to allow free escape of pus. Injections of carbolic acid solution and tent of oakum inserted several times during the day. Pulse, 72; temperature, 102°.

July 10th.—Pulse, 66 ; temperature, 101 $\frac{1}{4}$ °. Wound received the same treatment as yesterday.

About 9 o'clock, A. M. gave aloes 3 vi. Before night a slight diarrhœa set in.

July 11th.—Condition the same as yesterday. Another suture removed and a pair of dressing forceps introduced, in order to dilate the wound. By so doing, a large amount of sanious pus in which were shreds of dead tissue was evacuated. The wound was irrigated with cold water, followed by injections of carbolic

acid solution. A tent of oakum saturated with a solution of boracic acid ʒss to aqua ʒi was then introduced.

July 12th.—Pulse, 60 and weak; temperature, 103°. Diarrhœa still continues. Complete anorexia. Gave powd. opii, catechu, ginger, aa ʒi., in pill form. Also gave liquid tonics and stimulants through the day. The limb is less swollen and some weight is borne upon it. The discharge of pus is less than at any time before, but it is of a foetid odor. A large slough removed. The granulations are unhealthy. The same treatment of the wound is continued.

July 13th.—Pulse, 60; temperature, 103½°. The diarrhœa has stopped, and the appetite improving. The discharge is less and of a better odor. Same dressing, and the edges of the wound canterized with chloride zinc solution. Liquid tonics and stimulants three times a day.

July 14th.—Temperature, 102°; pulse, 48.

July 15th.—Temperature, 104°; pulse, 54; respiration, 36. Condition not so good. Appetite failing; discharge increasing, less healthy.

July 16th.—Temperature, 102°; pulse, 54; respiration, 24. Two pieces of tissue sloughed away. Walks a little better. Œdema of leg is less and the appetite is slightly improved. From this time up to the 23d, the condition remains about the same, the highest temperature being 103°. The internal treatment has been the same and the dressing has been continued three and four times a day. To-day, while introducing the dressing forceps, an abscess which had formed at the upper portion of the wound was punctured and several ounces of pus escaped. Two large pieces of tissue which were sloughing were also removed.

July 25th.—The condition is normal, and the discharge, which has diminished since the abscess was opened, is very slight. There is also an improvement in walking, but he is still lame and knuckles badly at the fetlock. Wound is two inches less in depth.

Up to August 6th, there is no change for the better; on the contrary, the discharge increases and continues to be of a foetid odor. The injection of carbolic acid solution has been discontinued and Villate's solution (weak) used instead.

This treatment was continued and walking exercise given twice a day, till the 14th, when he was sent home, with directions to be brought back every day to be dressed, which was not done, as the owner availed himself of the first opportunity which presented itself of disposing of him. Thus all trace of the case was lost and the owner relieved himself of the expense which would have to be incurred before the fistulous track was entirely closed and the animal fit to resume his duties.

PUNCTURED WOUND OF LEFT HIP—DEATH.

This case was a gray gelding, ten years of age, fifteen hands three inches in height.

On July 18th he was brought to the hospital in an ambulance, from which he was removed with difficulty, being very weak, walking with great abduction of near hind leg and carrying but little weight upon it.

History.—He had been injured by being run into, one week previous. The owner had treated the case himself, but as it was not improving, had it brought to the hospital. The injury was caused by the point of a thill and the wound received a little below the external angle of the ilium. In order to explore the wound, the skin had to be drawn forward, and a flexible catheter was then introduced into what seemed to be a pocket. This extended backward ten inches, over the neck of the bone. A seton had been introduced for the purpose of drainage, but it had been removed before the animal was admitted.

More or less hemorrhage accompanied the discharge of pus at all times. A seton was introduced and several ounces of sanious pus was evacuated.

The tail was matted together and covered with a dirty light brown fluid. Upon lifting the tail the fluid was seen to ooze from an opening at the left side of the anus. This proved to be the opening of a track seven inches in length, running along the left lateral border of the rectum, but not communicating with it.

The discharge was sanious and of a foetid odor. Upon being turned around, the discharge would be ejected with considerable

force. This gave rise to a suspicion that pus might be collected in the gluteal region but was retained by the aponeurosis. But a second exploration failed to disclose anything further. Pulse, 80; temperature, 102° ; respiration, 36.

Both wounds were washed and carbolic acid solution injected. For the past two days the appetite has been failing, and to-day, there is complete anorexia. About six o'clock the animal manifested colicky pains and laid down. Being unable to rise, he was put in slings.

July 19th.—Pulse, 66; temperature, 102° ; respiration, 36. Wounds dressed and carbolic solution injected. Pus of an offensive odor. Alcohol and carbolic acid solution (1 to 40) aa ζ ii., in drinking water three times a day.

July 20th.—Pulse, 60, small and weak; temperature, 102° . Is very weak. Appetite improving a little. Same treatment.

July 21st.—Pulse 60; temperature, 103° ; respiration, 36. Slings removed. Dress and treat as before.

July 22d.—Pulse, 60; temperature, $101\frac{1}{2}^{\circ}$; respiration, 48. Abscess in the region of large trochanter of femur opened and several ounces of sanious pus evacuated. Discharge from track at anus is about the same in quantity and odor.

July 23d.—Opening at anus enlarged; still failed to find any communication. Condition the same as yesterday. Appetite improving. Leg much swollen and moved with difficulty. Shower with water.

July 24th.—Temperature, 102° ; pulse, 60; respiration 30. Two counter openings made in posterior crural muscles.

July 25th.—Condition the same. Animal is becoming much emaciated. Wounds dressed and carbolic solution injected. Alcohol and carbolic solution increased to ζ iii., of each, three times a day.

July 26th and 27th.—Condition remains the same.

July 28th.—Found down and unable to rise; put in slings. Temperature, 104° ; pulse, 78; respiration, 42. At 5 o'clock, P.M., temperature, 102° ; pulse, 72; respiration, 42. Mucons rale heard at nostrils.

July 29th.—At eight o'clock, A. M., temperature, $103\frac{1}{2}^{\circ}$;

pulse, 72; respiration, 48, and labored. Pupils dilated and anxious expression of countenance. At nine o'clock, fell forward in the slings and was at once lowered to the floor. Respiration became increased, struggled violently and broke out into a profuse perspiration, over the anterior portion of the body first, and then the hind extremities, until the entire body was as wet as if water had been thrown upon it. Pupils widely dilated, expression wild and fierce. Made repeated but vain attempts to rise and died in a semi-comatose condition about 9.30 A. M.

Post mortem—On dissecting away the skin covering the point at which the injury had been received, it was found that the wound had been made through the anterior portion of the fascia lata muscle, and extended upward to the external angle of the ilium. Here there was found an incomplete fracture, involving the two inferior tuberosities. This constituted the original injury. Upon pus being formed, it collected in the region of the neck of the bone. This abscess had been partially drained by setons; but the pus had so infiltrated the entire muscular structure of the hip, that numerous abscesses had been formed, the contents of one being discharged through the track which opened at the left of the anus. Another was found at the posterior face of the femur, involving the posterior crural muscles. The contents of all were undergoing degeneration, and consisted of cheesy like masses. The blood vessels, of a dull slate color, were fully exposed. Their walls were very thin, which accounted for the frequent hemorrhages. The blood was thin, dark red in color, and of a foetid odor. The rest of the body was not examined.

P. S.—An unfavorable prognosis was given at the time of admittance, but as a law suit was pending, the owner would not give his consent to have the horse destroyed.

EMBOLISM OF BOTH INTERNAL ILIAC ARTERIES.

By R. KAY, D.V.S. (House Surgeon).

Lameness in the horse from embolism of arteries supplying the extremities, occurs more frequently than we are aware of.

In cases where the clot only remains for a short space of time, and is then broken up, the lameness will pass away without betraying the real cause to have been a defect of nutrition of such parts by the plugging up of blood vessels. If only a collateral vessel has been obliterated, we shall meet with a wasting of the muscles supplied by the implicated vessels. But where a main artery, as the humeral or the iliac, is affected, we should discover a coldness of the extremities involved, with partial, or, more probably, total paralysis of the limbs. A case occurred here, at the college, which illustrates this. On the evening of November 1st, about 8 P. M., a call came to see a horse which had just dropped down on the street. The owner, who was driving the animal at the time, stated he had owned the horse from October 15th, and had used him in a delivery wagon daily till the 23d. On that day, after making his trip and returning, he noticed that the horse commenced to tremble, break out in a sweat in patches, and acted as if in great pain. Being near home, he unhitched him, and with some difficulty got him to the stable. He was there allowed to rest for three days, when he appeared all right again, and he was put to his work again daily, till the next attack, on November 1st.

Dr. Critcherson, house surgeon, being on outside duty, answered the above call, and found the horse down in the street, as before stated. He made a short examination, and found that the horse, when made to get up, did so with difficulty, wheeling around and dropping down again. He advised the owner to get the ambulance and bring him to the college hospital, where a more thorough examination could be made as to the nature of the disease, and where he could be properly treated, if necessary. The owner consented, and he arrived at the hospital at 10:30 P. M. He stood up in the ambulance on the way over, but had extensive knuckling of the hind fetlocks. He was not able to back out, and fell down in attempting to do so. He was then secured on the roller platform, and drawn back to a large box stall, and when released he made a struggle and got on his feet again. We took this opportunity to put him in slings, but with no benefit, as he dropped down in them, and had to be released.

Temperature, normal; pulse, 70; respiration, 24; cold sweat on the body; the near hind leg very cold; had no feeling when pricked with the point of a pin. The off hind leg showed colder than the body. As he was resting quietly, and free from apparent pain, we concluded to leave him till next morning before making a diagnosis, which could only be obtained after an examination per rectum.

Friday morning, November 2d—Found the horse standing. I made an examination per rectum, and found a peculiar pulsation in the posterior aorta, anterior to the bifurcation. The beat was strong, but rebounding, giving the sensation to the fingers of striking an obstruction, and being then thrown back again. The external iliacs were nearly normal in pulsation; the internal iliacs gave no pulsation, but felt considerably enlarged, and very hard to the touch, with an irregular outline. This abnormal condition, it was suspected, was caused by an embolism, which was also the cause of the partial paralysis existing.

Dr. Liautard then made an examination, and confirmed my diagnosis, and requested the class of senior students to take advantage of this case, and make the examination, in order to become acquainted with the diseased condition of the arteries in question. Many of them did so, till the horse dropped down again. The owner called about this time, and an unfavorable prognosis was given him. He was recommended to have the animal destroyed, and, consenting to it, it was carried out, and a post mortem made, with the following results:

A longitudinal section through the ribs, then laid over, exposed the abdominal cavity. The intestines, stomach, liver, etc., were removed. An opening was then made into the thoracic cavity, and the heart, with its chief blood vessels, examined, but nothing abnormal discovered. The posterior aorta, with its collateral branches, was next examined, and all found to be in a healthy condition. The external iliac arteries were also inspected, but on reaching the internal iliacs, they were found both to be plugged by an embolism, extending on the left side through the entire length of the obturator artery, and all the collaterals of the internal iliac. The internal iliac on the right side was also

obstructed, and its collaterals, with a short distance into the obturator artery. The embolism was firmly attached to the walls of the arteries and well organized in most of its substance, simulating connective tissues. Other parts showed more recent clots.

The conclusion arrived at was, that it had existed for a period of two months or more; that it commenced as a thrombus in the posterior aorta, and was carried back until it struck the bifurcation, and gradually becoming larger, some portion of it was washed off, and then carried into the internal iliacs. This obstruction collecting more material from the blood, finally occluded the artery by an embolism, thus giving rise to the attacks of paralysis with which the animal suffered on two occasions, the last one having been more severe than the first.

A point emphasized in this case is the importance, when an animal is suffering from partial or total paralysis of the hinder extremity, of always remembering to make an examination per rectum, to test the pulsation of these arteries, before making a diagnosis.

UNIVERSITY OF PENNSYLVANIA.

CURRICULUM OF THE VETERINARY DEPARTMENT.

The regular opening of the Veterinary Department has been unavoidably delayed, and cannot take place until the summer of 1884.

The instruction will cover a period of three years, during which the following course will be followed:

First Year.—Chemistry, Materia Medica and Pharmacy, Physiology, Histology, Botany, Zoology, Flogging, Veterinary Anatomy.

Second Year.—Medical Chemistry, Physiology, Therapeutics, General Pathology and Morbid Anatomy, Veterinary Anatomy, Surgical Pathology, Internal Pathology and the Contagious Diseases, Botany, Zoology, Clinics and Hospital Service as Aids, Horse Shoeing.

Third Year.—Therapeutics, General Pathology and Morbid

Anatomy, Surgical Pathology and Operative Surgery, Internal Pathology and the Contagious Diseases, Sanitary Police, Obstetrics, Zootechnics, Visits to Slaughter Houses and Farms, Autopsies and Reports, Clinics and Hospital Service as Practitioners.

TERMS.—Matriculation (paid once only), \$5; Lecture fees (yearly, in advance), \$100.

Students who wish to begin their studies this year can matriculate with the Dean at once, and will be furnished with their tickets for those courses taught in the Faculty of Medicine. Opportunities for anatomy and dissection will be offered after the 1st of January. Students following this course will be received in the second year's class next year. Address*

PROFESSOR R. S. HUIDEKOPER,
Dean of the Veterinary Department,
111 South Twentieth Street, Philadelphia.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, November 13th, 1883, at eight o'clock, P. M. The President, Dr. Liautard, in the chair. The gentlemen present being Drs. Coates, L. McLean, Kay, Burden, R. McLean, Critcherson, Pendry, Bretherton and Denslow.

The Secretary being absent, Dr. W. H. Pendry acted as Secretary *pro tem*.

On motion, the reading of the minutes of the last meeting was laid over.

The Chairman stated that, for some unaccountable reason, the Secretary had omitted to send out the usual notices for the meeting, and attributed the smallness of the attendance to that fact. After some discussion, as to whether a paper should be read, Dr. Coates read a highly interesting and well written paper on Diseases of the Heart.

Dr. McLean thought the paper was of too great interest to the profession to be discussed at so small a meeting, and should go over till the next. Dr. L. McLean objected, but on motion, it was laid over, and the Secretary instructed to notify the members to that effect.

The Chairman asked for reports of cases from those present. Dr. Denslow reported a case of what he considered scarlet fever.

Dr. L. McLean asked if the symptoms were, in all particulars, the same as in the human subject, and whether or not the etiology was one and the same.

Dr. Denslow considered that all the symptoms were present, but held that there must naturally be some difference in human scarlet fever and equine scarlet fever. He stated where the case could be seen, and extended an invitation to those present, which was accepted by the President and most of the members.

Dr. R. McLean reported three very interesting cases of what he termed typhoid malaria. The subjects were three green horses in the same stable, and were affected one after the other. What was remarkable was the very rapid fall of temperature, lowering three or four degrees during the night.

Dr. Coates was inclined to think that it might be influenza, with pulmonary congestion, but conceded that it was hard to account for the quick drop in temperature, and it might possibly be a case of typhoid fever.

Dr. L. McLean asked if it might not be considered a case of malaria.

Dr. Coates thought it was very possible.

Dr. Liautard said that French veterinarians admitted that typhoid fever had been discovered in the horse, and he had found lesions of Peyer's patches in a case during 1872. They were frequently mentioned by French veterinarians.

Dr. L. McLean had never seen a case, and questioned if there really was a case of typhoid fever in the horse. He believed there were frequently cases of malarial fever both in horses and cattle.

Dr. R. McLean thought cases that were considered typhoid-

influenza were typhoid-pneumonia, and cited cases that he termed malarial fever where the circumstances were such as to warrant the idea that trouble was entirely due to the local surroundings.

The question of using quinine was discussed, Dr. Coates holding that its use was indicated, as it had the power of killing bacteria in the blood. Dr. L. McLean did not consider that it removed the cause. Dr. R. McLean had once thought highly of quinine, and had used it to a considerable extent, but did not consider that he had had such results as to warrant him in continuing the use of such expensive medicine; he was now using iodine, and, he thought, with better results.

Dr. Burden reported a case of tympanitis, where abscesses had followed puncturing.

Dr. Liautard thought that the chance of such trouble would be considerably less if the instruments were carefully cleaned at each puncture.

Dr. L. McLean had never had bad effects from puncturing, and considered that cases were allowed to go too long before the trocar and cannula was called into use, and when too late, would undoubtedly give bad results.

Dr. Burden spoke of puncturing on both sides. Dr. Liautard could not see what results could be expected in puncturing on the left side, and that it was only running unnecessary danger of local inflammation, etc. Dr. R. McLean held that if you did not get results on puncturing on the right side, you should not be debarred from puncturing on the left. Dr. Coates thought it best to stop till the sides showed distention before puncturing.

Some discussion took place on the smallness of doses of medicine, as given in the English veterinary journals, as compared with the doses given in America.

The meeting then went into committee of the whole, and on rising, reported the election of Drs. Bretherton and Denslow to membership. Dr. R. McLean proposed G. Waters, V.S., for membership. Referred to committee on credentials.

A vote of thanks was extended to Dr. Coates for his essay.

Motion to adjourn was carried.

W. H. PENDRY, D.V.S., *Secretary pro tem.*

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Keystone Veterinary Medical Association was held at Philadelphia on the evening of October 6, 1883, President Miller in the chair. On roll call Drs. Miller, Rogers, Quill, Glass, Goentner and Hoskins responded.

A communication was received in regard to a new bill for the regulation of the practice of veterinary surgery in Pennsylvania, now being drafted by a committee of the State Society, to be presented at the next session of the Legislature.

Dr. L. C. Campbell, of American Veterinary College, Dr. R. S. Huidekoper of Alfort Veterinary College, and Dr. Charles Scaufler of Stuttgart College, Germany, were elected members.

The paper read was by Dr. W. Horace Hoskins on "Bronchitis." Quite an animated discussion followed as to the value of abortive treatment in the early stages of the disease, some favoring its adoption, while others opposed it. The use of inhalations of lime water for the purpose of stimulating the removal of mucus and the solution of false membranes, and as a curative agent, was warily discussed and strongly opposed by a majority of the members, they contending that it would aggravate the breathing and bring on fits of coughing, which would overcome the good effects that were attributed to its use.

It being the annual meeting, an election of officers for the ensuing year resulted as follows: For President, Dr. W. S. Zuill; Vice-President, Dr. Chas. O. Goentner; Secretary and Treasurer, W. Horace Hoskins. The following members to constitute the Board of Directors: Drs. W. S. Zuill, W. B. Miller, Alexander Glass, T. B. Rogers and L. C. Campbell, after which the meeting adjourned.

PHILADELPHIA, PA., Nov. 3, 1883.

The regular monthly meeting of the Keystone Veterinary Medical Association was held on the above date, the President, Dr. Zuill, in the chair. The following members responded to roll call: Drs. Zuill, Goentner, Glass and Hoskins.

A copy of the bill emanating from the Pennsylvania State

Veterinary Society was read, but no action was taken at the meeting.

Dr. Glass then read an essay on "Plethora in Dogs." This he attributed to many causes, the most important being over-feeding, insufficient exercise, etc. The subject was well handled, and being a new heading for a common trouble, was found interesting.

W. HORACE HOSKINS, *Secretary.*

CORRESPONDENCE.

CARTILAGINOUS QUITTOR.

BY W. CUTTING, V.S. (ROCHESTER).

SEPT. 24, 1883.

Mr. Editor—I beg to report to you another case of cartilaginous quittor, with its treatment and cure.

On the 13th of August last I was called to a black mare at the Rapids Village, near this city. I found the mare suffering with quittor on the off fore foot. The foot had been poulticed by Mr. Burns, the owner, as farmers frequently do, with cow manure. The discharge from the several wounds of the heel and the two openings on the side of the foot at the anterior part of the inner cartilage was very copious and very foetid. I first cleansed the foot with soap and warm water, and then passed the probe in at one of the openings of the heel to the bone. There seemed to be quite a cavity, at least two inches in depth. I could pass the probe freely on either side of the lateral cartilage. The openings on the side of the foot were not far apart, although they seemed to me to have been separate abscesses. I pared away the superfluous horn from the heel, but found no opening from the sole of the foot, although the animal had an old seedy corn. I then dressed the foot by injecting into the cavity from one of the openings in the heel, using a small metallic syringe, one drachm of the "Ol Eucalyptol E. Follis,"* full strength, and

* Sanders & Sons, of Sandhurst, Australia, claim to be the discoverers, and are the manufacturers and protected proprietors of this medicine.

saturated two small pledgets of cotton, one in each of the side openings. I then enveloped the foot in petroleum, placing cotton batting over it, covering the whole with a piece of sacking, and tying firmly below the fetlock joint.

On the 15th of August visited the animal again. On removing the dressings I was pleased to find the character of the discharge from the wounds changed, the discharge being white in color, and void of smell. The division of the side openings was gone, there being now but one opening, and that presenting a more healthy appearance. Dressed as before, injecting the cavity, by the principal opening at the heel, with full strength "Ol Eucalyptol E. Follis," and putting a pledget of cotton saturated with "Eucalyptol" into the side opening; then smearing the whole foot with petroleum and covering with cotton and sack as before, firmly tied.

On the 17th visited the mare again, the owner telling me she was better. On examination I found his view correct. The wound was evidently healing fast. Dressed as before. 20th visited mare again, and found the discharge much lessened, the wounds healing rapidly; no fetor. Dressed as before. 23d visited mare again. Found the foot about well. There was no lameness whatever, and I could not get a very small probe in either of the wounds, neither could I force any of the dressing into the foot with the syringe. I therefore dressed externally, wrapping the foot as before, and ordered the mare brought to my shop to have a shoe on in a day or two.

On the 27th she was brought to my office, a distance of three miles, the mare trotting along without effort and not at all lame.

I showed the mare to Mr. Parsons, D.V.S., of this city, and I understand one of your pupils, and he expressed much surprise at the rapidity of the cure. I saw the animal again on the 17th of September. The cure is complete, and the foot but slightly disfigured. I do not believe that extirpation of the lateral cartilage is at all necessary, except in extreme and very long standing cases.

This medicine is a volatile ethereal extract of the leaf of the "Eucalyptas Globulus," a gigantic tree of Australia. There are

other preparations from this tree in market, but that of Sander's & Sons is the only one prepared from the leaf. And I am sure it is a most valuable aid to the veterinary surgeon. I think that no veterinary pharmacy can be complete without it. It will do what no other remedial agent will do. It will restore a healthy action in a diseased part as no other preparation will. It does not appear to me to be an escharotic. It is a deodorizer, and is a disinfectant of great power, and I believe is very effective, given internally, in arresting typhoid tendencies.

I have used this remedy in several cases of purpura hemorrhagica, one a well developed case. I gave it in thirty minim doses, twice a day, in combination with one drachm doses of cinchona sulph. per bolus, with marked success, as my patient recovered. Other cases in which I have used it have recovered. Not one that I have used this agent on has died, as yet. I have used it also in pinkeye; or more correctly speaking, the prevailing form of pneumonia, with very satisfactory results. I have also used this remedy in foot wounds, and I think it superior to any other remedy for punctured wounds of the foot.

Very respectfully yours,

WILLIAM CUTTING,

5 North Ave., Rochester, N. Y.

REVIEW.

EQUINE MEDICINE.

BY WILLIAM ROBERTSON, F.R.C.V.S.

The veterinary practitioner will welcome the publication of this new text book on the pathology of the horse. Prof. W. Robertson, who has for several years past occupied the position of Principal of the Royal Veterinary College in London, is a gentleman whose long years of practice have afforded him large facilities for acquiring an accumulated store of special knowledge in the sphere of equine medicine.

The book appears in the form of an eminently practical

treatise, which must soon become a classic and a standard in the literature and the institutions of veterinary education. It occupies some eight hundred pages, and is divided into two principal sections, treating in the first, of the Theory, and in the second, of the Practice of Medicine. The second part is again sub-divided, and treats severally, of General and Local Diseases. In the department of General Diseases are included not only the idiopathic fevers, but the contagious diseases, while the second, embraced in seventy-four chapters, comprehends all the other diseases as they affect the various functional apparatuses and the regional pathology of the general organism.

The work is written in a clear and comprehensive style, and must not only prove one of great interest and value to the veterinary student, but a material aid to the busy practitioner, as well, who cannot fail fully to appreciate the results of the difficult task so ably performed by the author of *Equine Pathology*.

It is long since so important a contribution has been made to the catalogue of veterinary literature.

HORSE'S TEETH. (SECOND EDITION.)

By W. H. CLARKE.

This little book (of nearly 300 pages) is a revised edition of a former publication, and is a great improvement upon the first essay of the author. It contains, in the first part, a variety of collated facts relating to the anatomy, histology and natural development of the organs referred to, and reports a number of illustrative cases respecting the surgery of the dental apparatus, most of which are compiled from European writers. The question of the age of the animal as determined by an inspection of the teeth is treated too superficially to be of any great benefit, and the plates which are to serve as guides are unworthy of the first part of the book. On the whole, however, Mr. W. H. Clarke is entitled to a degree of credit for the labor he must have assumed in gathering the material composing "*Horse's Teeth*."

DE L'EXTERIEUR DU CHEVAL. (SECOND PART).

By A. GOUBAUX AND G. BARRIER.

This is the second part of an excellent work which has been recently published in Paris, and of which we make mere mention at present, in order to associate it with the above-named work of Mr. Clarke. In the second portion of "Exterieur du Cheval," the subject of horse's teeth is extensively treated, with the omission, however, of the pathology and surgery; and to this, nearly two hundred large octavo pages are devoted. Of all works relating to the teeth and their uses in the determination of the animal's age, this is no doubt the most thorough, and the one that will always be consulted in this sometimes difficult part of the veterinarian's calling.

OBITUARY.

The decease of Mr. Thuillier, one of the members of the late Pasteur Commission, in Egypt, on the 18th of September, is reported. One of the four savants who had bravely accepted the danger of exposure to a dreadful disease, in order to investigate its characteristics, this young man—who had already made his name famous by his association in the laboratory work of Mr. Pasteur—was attacked with cholera at a time when all danger of infection seemed to have passed and the work of the commission was finished, all connection with choleraic subjects having ceased for a period of two weeks. It is to Mr. Thuillier that it is due, through the discovery of the microbe of hog cholera, (vainly searched for by many investigators) and to his successful experiments in inoculation, that the disease is now successfully controlled. The other members of the commission, Messrs. Nouerd of Alfort, Strauss and Rowe, have returned safely to Paris.

NEWS AND SUNDRIES.

IMPORTATION OF SWINE.—The German Government has prohibited the importation of swine from Russia.

PLEURO-PNEUMONIA.—Contagious pleuro-pneumonia is said to have broken out among cattle in Lehigh Valley, Pennsylvania.

FORM OF ANTHRAX.—An unknown disease, thought by some to be bloody murrain, has broken out among the cows in Newburg, N. Y. One dairyman, Mr. Samuel J. Hewitt, of that place, had thirteen cows. All were attacked and all died within half a day.—*American Cultivator*.

KAIRIN, THE NEW ANTI-PYRETIC.—This drug has finally been put upon the market by a German firm, the price being 200 marks per kilogram, which is very much cheaper than quinine. Dr. Knipping, of Neuwied, has reported a successful experience with kairin in a case of puerperal fever.—*Medical Record*.

TRICHINÆ.—Four hundred persons are affected by trichinæ in ten villages of Saxony.

BLACK LEG.—Black leg has been fatal among cattle on the Pawnee, Kansas, this fall.

GLANDERS.—Occasional cases of glanders are reported among the horses in the ranching regions of the northwest, though their isolation prevents the spread of the disease.—*Pittsburg Stockman*.

SCAB IN SHEEP.—A case of scab having appeared among a lot of sheep in Montreal, for shipment, the Department of Agriculture has ordered them slaughtered. It is necessary to take strict measures to prevent Canadian exportations of live stock to England from being prohibited.—*American Cultivator*.

TYPHOID FEVER.—There are seventy-five cases of typhoid fever in Port Jervis, N. Y. The spread of this disease is attributed to the use of milk from the farm of Mrs. Thomas Cuddebach, in whose family there have been several typhoid cases. It is held that the milk conveyed the disease germs. Nearly all of the

parties now sick had used milk from this farm.—*American Cultivator*.

AMERICAN PORK COMMISSION.—The President's commission to investigate the swine and pork business in this country, mentioned in the *Prairie Farmer* of September 29th, will consist of the following members: Dr. Geo. B. Loring, F. S. Curtis, and Dr. D. E. Salmon, of the Department of Agriculture, C. F. Chandler of N. Y., and E. C. Blatchford, of Chicago. The commission will be instructed to thoroughly investigate the whole subject, and there will be given every facility for studying every feature of the case presented in the attacks of foreign countries on American pork.—*Prairie Farmer*.

CATTLE DISEASES IN IRELAND.—A committee was appointed by the Glasgow authorities to visit Ireland and make a report regarding the prevalence of contagious diseases among animals there. The following extract from their report is taken from the *Farmer's Gazette*, Dublin, Sept. 8th: "Foot-and-mouth disease is very prevalent and wide-spread. The number of animals attacked and reported during the week ending July 28th, was 1,337, and for the week ending August 4th, 1,829. The disease is rapidly on the increase—upwards of forty new centres of infection having been reported to the Privy Council the day we left Dublin. The disease has now made its appearance in County Antrim, and in the neighborhood of Belfast. Pleuro-pneumonia is also much more prevalent in Ireland than in Scotland. Pig typhoid, or swine fever, is more or less spread over the whole of Ireland. These facts prove that Ireland, to a large extent, is an infected country, and worse still, that the principal areas of infection involve the ports and surrounding districts, from which we draw, directly or indirectly, our supplies of Irish live stock. The shipments from Irish ports to Great Britain for the week ending August 25th were 10,800 cattle, 15,756 sheep, and 3,247 swine. This business must be seriously affected by the diseases now prevailing in that country.—*Nat. Live Stock Journal*.

GLANDERS AGAIN.—Another fatal case of glanders has occurred in this State. This time it is Charles Lorrensens, a well-

known young farmer near Elgin. It is also reported that Mrs. Lorrensen exhibits indications of the disease. Lorrensen was twenty-five years of age. The couple was married only last spring. The deceased contracted the malady from a horse, and had been ill but four weeks, and he suffered indescribable torture. Physicians were unable to determine the disease. Finally, a local veterinary surmised that the ailment was glanders, and Dr. Paaren, of Chicago, who examined into the matter, so decided. At Dr. Paaren's suggestion Lorrensen's sick horse, that had been suffering with an unknown ailment for two years past, was shot. Fears are entertained that the disease will spread, although all precautions are being taken to prevent it.—*Prairie Farmer*.

⊙ DANGER FROM FLIES.—Dr. Grassi is said (*British Medical Journal*) to have made an important, and by no means pleasant, discovery in regard to flies. It was always recognized that these insects might carry the germs of infection on their wings or feet, but it was not known that they are capable of taking in at the mouth such objects as the ova of various worms, and of discharging them again unchanged in their fæces. This point has now been established, and several striking experiments illustrate it. Dr. Grassi exposed in his laboratory a plate containing a great number of eggs of a human parasite, the *tricocephalus dispar*. Some sheets of white paper were placed in the kitchen, which stands about ten meters from the laboratory. After some hours, the usual little spots produced by the fæces of flies were found on the paper. These spots, when examined by the microscope, were found to contain some of the eggs of the *tricocephalus*. Some of the flies themselves were then caught, and their intestines presented large numbers of the ova. Similar experiments with the ova of the *oxyuris vermicularis* and of the *tænia solium* afforded corresponding results. Shortly after the flies had some mouldy cream, the *oidium lactis* was found in their fæces. Dr. Grassi mentions an innocuous and yet conclusive experiment that every one can try. Sprinkle a little lycopodium on sweetened water, and afterward examine the fæces and intestines of the flies; numerous spores will be found. As flies are by no means particu-

lar in choosing either a place to feed or a place to defecate, often selecting meat or food for the purpose, a somewhat alarming vision of possible consequences is raised. Dr. Grassi invites the attention of naturalists to the subject, and hopes that some effectual means of destroying flies may be discovered.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Gazette Medicale, Veterinarian, Veterinary Journal, Annales de Belgique, Presse Veterinaire, Archives Veterinaires, Recueil de Medecine Veterinaire, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Repertorium der Thierheilkunde, Tidsskrift for Veterinærer, &c.

HOME.—American Cultivator, Medical Record, Brewers' Gazette, National Live Stock Journal, Rural New Yorker, Country Gentleman, American Agriculturist, Spirit of the Times, Turf, Field and Farm, Prairie Farmer, Maine Farmer.

JOURNALS.—Ohio Farmer, Farm Journal, Medical Register, Home Farm, Pittsburg Stockman, Chicago Horseman, United States Dairyman, Health and Home, Journal of Agriculture, The Polyclinic, Northwest Farmer, American Sports, &c., &c.

COMMUNICATIONS.—Letters and communications have been received from Prof. Huidekoper, W. Devoe, Rob. Harrison, R. Kay, W. D. Critcherson, Geo. H. Bailey, W. H. Pendry, W. H. Hoskins, C. B. Michener, J. Meyers, Sen., C. P. Lyman, F. S. Billings.

AMERICAN VETERINARY REVIEW,

JANUARY, 1884.

ORIGINAL ARTICLES.

POISON IN AMMONIA.

BY J. C. MEYER, JR., M.D., V.S.

POISONING OF FIFTY-FOUR HORSES BY INHALATION.

October 14, at 8.30 p. m., an accident occurred at the establishment of the Ch. Moerlein Brewing Co., caused by the spontaneous separation of a joint connecting two pipes containing ammonia in the shape of gas used in the manufacture of cold air which is forced into the beer cellars of the brewery. This happened in a large room in the immediate vicinity of a door which leads into the adjoining stables of the establishment, that had been unwittingly left ajar. It being Sunday night, the doors of the stable opening into the street were closed, thus permitting the ammonia to escape directly into the midst of the horses, causing the immediate death of twenty-four head and the poisoning of thirty others to a greater or less extent. Through the timely arrival of assistance, a number of others were rescued without receiving any serious injury.

Shortly after the occurrence I arrived at the place, and the sight that met my eye by the aid of a dim light was most horrible. Carcasses of horses lying all over the stable floor and in the stalls. The stable flooded with water by the fire companies in order to mitigate the irritating effects of the ammonia. A couple half dead, moaning horses dragged out into the street that they might be revived if possible; in addition the intolerance of

the pungent ammoniacal atmosphere still contained within the stable walls, will leave a lasting impression upon those present.

I very soon became aware that my presence here was not momentous, and, after giving directions for the relief of the unfortunate lying in the street (unfortunate because they were not asphyxiated at once) I proceeded to the place where those rescued from the ill-fated stables were quartered. After they were gathered from the streets and neighboring stables I found that they numbered thirty. All suffered from the inhalation of the irritating gas to varying degrees of severity. To witness so many brutes suffering in this manner under one roof aroused the sympathy of the most unconcerned.

Only a few among them, probably three or four, seem to be but slightly affected. On the other hand a vast majority display very alarming symptoms. They in general look excited, with heads elevated. A few, however, are stupid, with heads pendent. They cough, without exception; it is of a short, painful character. Nostrils well dilated, with a bloody frothy discharge issuing therefrom in many instances; Schneiderian membrane and mucous lining of the buccal cavity are of a scarlet red color. Eyes are irritated; lids half closed; cornea turbid; lachrymation from one or both eyes is profuse in most cases. The skin is dry and hair staring. Some horses evince soreness upon touching them, in fact a few kick viciously when anything comes in contact with their skin. Frequent scanty acts of micturition are observed. The fœces passed is for the most part soft and in small quantities. Two patients have symptoms of colic; pawing, lying down and getting up every few minutes. The abnormal respiration is the most conspicuous symptom present. Nearly all breathe heavy, quick, and audibly; audibly, due to the presence of bloody froth in the nasal tract. On auscultation, noisy, rustling, blowing, whistling and friction sounds are detected in most cases. Such a variety of abnormal sounds are seldom encountered in ordinary lung diseases.

On percussion, an exaggerated resonance prevails in those cases where any alteration is perceptible. The pulse is considerably quickened and firm in most patients, but in those that are languid it is rapid and faint. In a few it is irregular. The tem-

perature is not much elevated yet—the thermometer registering less than 102° Fahrenheit.

October 15.—The general appearance of the patients is more listless. The febrile symptoms are well established, as indicated by the pulse, which numbers from 60 to 90 per minute, and the temperature ranging from 102° to 105°. The respiration is very much embarrassed. Cough exceedingly painful and hoarse. Eyes are mostly closed and cornea have a greyish appearance. The discharge from the nostrils varies in different animals; it is less frothy; in some it has changed to a sticky greyish mucus, in others to a rusty colored sputa, and in the most aggravated it is tinged with blood and coagulated particles of lymph, having the appearance of false membrane. The intense redness of lips, cheeks and tongue is vanishing. The flow of the salivary secretion is copious. The horses drink but little and even abstain from rinsing out their mouths in a pail of water. A few show some desire to eat bran-mash and hay. Their coat is staring and lusterless. A grey horse called Circus is quite restless; moves to and fro almost continually as far as his halter shank permits him. He paws occasionally and looks very anxious. Head elevated, nostrils dilated and respiration very much accelerated. He has a pulse of 120 per minute. A roan horse named Sam also presents very grave symptoms. He is in a profound state of apathy, hardly able to stand on his feet. Pulse almost imperceptible and respiration stertorous.

October 16.—Circus and Sam died early this morning. The general symptoms of the remaining are intensified. Several horses are restless. Bloody discharge from the nostrils prevails in some; in others it is thicker and more tenacious. Eyelids are either partially or entirely closed. When opened, excoriations of cornea the size of a pea are readily observed, surrounded by a greyish film. Cough is somewhat looser and less frequent. The horses now begin to drink water freely. Their mouths are decidedly better, less swollen and assume a more natural color. Circulation as a rule is rapid and weak. In some it is almost imperceptible. Heart strokes, however, can be easily felt, varying from 54 to 96 per minute. Respiration is very frequent and quite noisy owing to the presence of sloughs of the Schneiderian

membrane. A physical examination of the chest discloses about the same rough, blowing or shrill whistling sound as at former examinations, though in a few cases a circumscribed pulmonary hepatization can be detected by the limited absence of all murmurs and a well defined dullness on percussion. A soft mucous rale is heard over the bronchii. Temperature in general is on the decline. Four horses have been destroyed.

October 17.—An improvement in most patients is quite apparent. Cough is less distressing. They drink a large quantity of water; eat hay and sheaf oats immoderately. Performed tracheotomy on a grey horse, George, having considerable nasal obstruction, in fact so much so that he is restless and compelled to open his mouth at each inspiratory act to get a sufficient quantity of air. The operation affords him immediate relief. He has a pulse of 74 per minute and temperature of 105° . Removed numerous eschars from the nostrils of several patients, furnishing them decidedly better breathing facility. Two horses have been destroyed.

October 18.—Discharged all but eleven patients from the hospital shed. Symptoms of those remaining are as a whole satisfactory. Their breathing is easier, owing chiefly to the separation of the disorganized Schneiderian membrane. The removal of these sloughs is attended by some hemorrhage and naturally enough leaves excoriations. They open their eyelids wider and the corneas look better. Was obliged to perform tracheotomy on a bay horse, Joe, with very good result. This horse is the worst patient of all; has a pulse of 96, respiration 60 and temperature of 105° . George now is somewhat better; breathes easier with pulse 78 and temperature 104° . A bay horse, Charlie, also deserves special notice from the fact that he has a well defined attack of pneumonitis. His respiration is very much labored, pulse 72 and temperature $104\frac{1}{4}^{\circ}$.

October 19.—The majority continue to improve; appetite increasing; symptoms all abated; cough not so frequent or severe; discharge from the nostrils is more pus-like, and quite offensive in some, though this offensive odor must be differentiated from that so characteristic in suppurative pneumonia. The assurance that this fetid smell does not come from the lungs can

be observed in the two horses having an artificial opening in their trachea. The expirium passing through the tubes is entirely devoid of smell while the air passing through the nostrils after shutting off the tube is very offensive.

October 20.—Discharged three horses; others doing well save Charley and Joe, which are still in a doubtful state. George is eating well and breathes without impediment. A large eschar is extracted from Charlie's left nostril; it is elliptical in shape, 5 inches long, 2 inches wide and as thick as harness leather; smaller ones are removed from Joe and a few others.

October 21.—The gross symptoms do not vary much. A grey horse, Barney, has a chill; his temperature is 104° and his pulse 76 per minute, and looks somewhat despondent. Charley has considerable breathing difficulty, not only attributable to his lung trouble but also to his nasal obstruction. To relieve this, a tube is introduced into his trachea, from which flows a large quantity of pus of an offensive odor, unquestionably proceeding from abscesses in the lungs. This phenomenon alone is sufficient to warrant his destruction, but from the fact that his breathing is rendered more comfortable by the use of the tube, I conclude to postpone it. Joe breathes very fast, about 60 per minute, but has no trouble in his nasal passages now. His pulse is 84 per minute; temperature 100° and appetite fair.

October 22.—Condition of all patients is encouraging save Charlie's. He is getting quite weak. Fell while being led across the floor, but rose without assistance. Recognizing the fact that no chance for his recovery remains, I ordered him destroyed. Joe lies down frequently; his symptoms are still quite important, but he has a good appetite. Barney's pulse and temperature continue well up, but otherwise looks favorable.

October 23.—Horses all improving. Excepting Joe's, their pulses range from 42 to 66 per minute and the thermometer registers below 103° . Appetite is fair and they lie down to rest. The breathing, however, in general, is markedly accelerated. The corneal opacity in some still prevails. It is needless to state that emaciation has become quite obvious by this time. They all have a slight mucous discharge from their nostrils and an occasional cough.

Considering the present favorable prospects I do not deem it interesting to continue a diurnal report. The only patient worthy of attention is Joe, who is still doubtful.

Up to November 5 Joe's condition has been fluctuating considerably. His respiration has been incessantly labored, numbering from 25 to 40 per minute; his pulse was never less than 75 per minute, and sometimes would reach 90. On the other hand his temperature remained in the vicinity of 101°. His lungs are in an emphysematous state. His appetite has during all this time been excellent.

November 6.—He suddenly exhibits symptoms of purpura hemorrhagica; a strange complication, indeed, when we reflect upon the etiology. His legs are swollen and hot and so painful he is scarcely able to move them. Petechia of a pale red color abound in the Schneiderian membrane in great numbers. His appetite is unimpaired.

November 7.—The swelling of his limbs now extends above his hock and knee joints. His temperature is 104° and pulse 82 per minute. Harry, a brown gelding that has thus far been doing reasonably well, taking on flesh and enduring a daily gentle exercise without fatigue, is attacked with a dyspnoea and a frequent, painful, short cough due to a highly emphysematous condition of his lungs. A purgative is administered and the allowance of hay shortened.

November 8.—The swelling of Joe's limbs is still on the increase. Several circumscribed swellings appear on the sternum. His febrile condition is in *status quo*. Appetite good. A black gelding called Doc, that had resumed work for the past two days, is unreasonably swollen about his ankles. He also has a bunch on his left hock joint. This looks rather suspicious, though he feels and eats well. His temperature is 101° and pulse 56 per minute. No petechia can be detected.

November 9.—Doc has an exaggerated form of purpura hemorrhagica. His legs are swollen, up to his stifle joints; an abundance of petechial spots of a deep red color appear on the lining of the nostrils. Pulse 75; temperature 104½.

November 10.—Joe is improving. Limbs are fully as large but less painful and can walk. Doc's limbs are quite volumi-

nous, hot and sensitive on pressure. His pulse beats 72 per minute and his temperature is 103° . Eats well and appears brighter.

November 12.—Joe is rapidly tending toward recovery; all symptoms are abating. Doc's limbs have attained an enormous size; his sternum, abdomen and sheath are also swollen; his breathing is made audible by a swelling of the alæ of the nose. Appetite is failing; pulse 76, temperature 103° .

November 14.—The swelling of Doc's fore extremities extends half way up the scapula. Numerous vesicles appear upon the skin of his limbs and sheath, which rupture and discharge serum. The swelling about his nose is diminishing. Breathes easier and eats some. Pulse and temperature are still well elevated.

November 16.---Doc's febrile symptoms are abating; appetite increasing, and swellings less painful though not much reduced.

November 18.—Emaciation is becoming well marked. His appetite is fair and looks more cheerful. The swellings about the scapula have disappeared. Extremities are becoming crusty in various places. His inferior abdominal and thoracic regions are still very large though rather œdematous. The discolorations of the Schneiderian membranes are disappearing. Pulse 66 and temperature $102\frac{3}{5}^{\circ}$.

November 29.—Have visited Doc at proper intervals up to the present date and contrary to my expectations he has been progressing favorably and bids fair to make an entire recovery.

I shall now give a brief description of the post mortem appearances as noted on two different occasions.

Post mortem examination of the cadavers immediately after being asphyxiated:—October 15 at about 11 a. m. I arrived at the rendering establishment. Although most of the carcasses have been disposed of, their thoracic organs have been preserved. The skin of nearly all the remaining bodies is denuded of hair to a variable extent, due to the caustic effect of the ammonia upon the cuticle. The chief pathological changes in the different cadavers are quite synonymous and confine themselves to the respiratory tract. The Schneiderian membrane, mucous lining of the pharynx, larynx, trachea and bronchial tubes are thickened and

greatly discolored, being of a dark blue hue, and in some places actually black. The connective tissues along the trachea are discolored in patches, presenting a dark blue speckled appearance. Lungs in general are somewhat discolored, but no marked evidence of congestion is observed; they are quite emphysematous and consequently exceedingly light. The vessels in the pia mater appear engorged. The internal layer of the œsophagus is easily detached, and that of the stomach is hyperæmic. The balance of the internal organs show no trace of disease.

October 17.—A post mortem examination of the grey horse Circus is made nine hours after death. He is not much distended with gas. Upon removing the skin covering, the anterior surface of the neck and lateral region of the thorax, an extensive blackish discoloration of the connective and muscular tissues is exposed. This discoloration occurs in isolated and confluent patches. The larynx and pharynx present a greenish black aspect. Mucous lining of trachea and bronchial tubes are of a like color, and thickened. A frothy bloody liquid is found throughout the whole respiratory track; an abundance of it is contained within the middle portion of the lungs, adding considerably to their weight; they are, however, not hepatized. An emphysematous state is apparent at the periphery of the lungs. The visceral and costal pleura is covered with a fibrinous network. A tenacious coating of mucus is adherent to the inner lining of the trachea and bronchi. The mucous coat of the œsophagus and stomach is congested. The exterior of the intestines in various portions bears evidence of inflammation. No further abnormal changes of the internal organs are discovered.

Treatment: The constitutional treatment pursued in these cases has been rather limited. The administration of drugs per orum was not admissible by reason of the intense irritability of the larynx and inflamed condition of the mouth. The slightest excitement induced by handling these patients about the head, gave rise to a coughing spell, therefore the hypodermic method was resorted to at the outset. Round doses of morphia were injected indiscriminately; also rectal injections of warm water were carried out. Nostrils and eyes were cleansed and anointed

with vaseline; later, where the nasal discharges became more purulent, disinfectants were freely used, also fumigations wherever indicated. After the amelioration of the severe cough, and the inflamed condition of the mucous membranes, one-drachm doses of fluid ext. digitalis were administered three times a day. To the complicated cases of purpura hemorrhagica large doses of iodide potassium were resorted to. Tracheotomy, as mentioned above, was performed wherever the indication presented itself.

Most of the condemned horses were disposed of by injecting a strong solution of cyanide potassium into the jugular vein by means of a short aspirator needle and a one-ounce hard-rubber syringe. The needle is inserted into the vein first, to make sure the injection is not subcutaneous; then the contents of the charged syringe are quickly emptied through the needle into the vein toward the heart; the needle is then rapidly withdrawn, and death ensues promptly.

In conclusion, a few remarks concerning a rare sequelæ which befell two patients, Harry and Jim, are of special interest, considering its origin; namely, a permanent emphysema of the lungs in its severest form. Both horses breathe with extreme difficulty, nostrils widely dilated and flanks very active. Neither can endure the least amount of exercise with any degree of comfort, consequently they are absolutely worthless. I may also mention that a trivial imperfection of the cornea of one eye is still perceptible in several horses.

CAUSE OF IMMOBILITY.

TRANSLATED BY PROF. R. S. HUIDEKOPER, M.D., V.S.

SUB-ACUTE INFLAMMATION OF THE BRAIN.

(*Archiv fur wissen. und prak. Thierheilkunde, Berlin, 1883, 6 Heft.*)

District Veterinary Surgeon Winckler, of Grafenau, Bavaria, notes that immobility in horses is markedly increasing in South Germany. The disease increases, not only where it already existed, but is appearing in regions where it was not formerly

known. The author says that the cause has been attributed to hot, damp, low stalls, to want of use of the animal, to over-feeding, especially with nitrogenous food, etc. Within recent years the hygienic condition of the stables has been greatly improved and the ground has been tilled deeper and with greater care.

The work-horse, which is almost exclusively the animal affected, now works in winter as well as in summer in South Germany. The disease appears most frequently in January and February and least so in September and October.

Immobility is much more frequently observed in the months of March and April and May, when the horses are hard worked, than in November and December, when they have little to do. In Wurtemberg the disease is called "Kleekrankheit" or "clover disease." The Bavarian veterinary report of 1874 showed that the disease appeared only in lime soils, where the leguminous plants abound. Immobility is not found among the horses in the high Alpine regions, where clover, etc., are not produced.

The author practiced for many years in the Mitterfels district of Bavaria and found the disease almost entirely in the country supplied by streams from limestone districts, and only met with it in rare cases in the valleys and hills free from lime, where the leguminous plants are wanting.

From these circumstances he questioned, what might be the substance contained in the leguminous plants, which caused the disease. Gérard, a Belgian writer, was the first to assert that the leguminosæ caused nervous symptoms. He found that it was not practicable to give a horse more than one pound of horse beans (food containing 17% of nitrogenous matter,) a day. By feeding three pounds a day he produced death from paralysis in 8 horses. Bettenkoffer and Voit had advanced the theory that excessive nitrogenous food caused fermentation of albumen and a pre-disposition to fibrinous exudation, but Winckler denies that the exudation is proportioned to the gravity of the symptoms. He asserts:

1st.—We frequently see horses suffering from sub-acute inflammation of the brain, bruised and wounded: we do not see more exudation in these wounds than in those of sound animals, which would be the case, if a special disposition to exudation existed.

2nd.—Frequently millers' horses are fed exclusively on bran, which contains more than 17% of nitrogenous matter, and yet they are not disposed to the disease.

3rd.—Brewers' horses, feed for months on little hay, almost entirely on malt refuse, are not affected.

4th.—Cattle are subject to the same disease, but with brewers' feed are not affected.

5th.—Experience shows that 90% of the cases occur between the middle of February and the commencement of September, yet the horses eat almost the same amount of the leguminosæ during the other months. The quantitative difference of nitrogenous matter in the food, at the two seasons of the year, is so small that it cannot be considered the cause of the disease.

6th.—The blood receives probably much less of the albumen from leguminous food than is generally supposed. As the hullings are generally boiled, the soluble legumin is mostly washed away.

The Bavarian veterinary report of 1874 claimed a relationship between large crops of the leguminosæ and immobility, but Dr. Winckler's experience is opposed to this. The author has noted for a number of years, that the disease is most frequent when the crops are harvested in rainy seasons. He comes to the following conclusions :

1st.—A special disposition to exudation does not exist in this disease.

2nd.—An excessive quantity of albumen neither causes the disease, nor pre-disposes to it.

It is evident however that the leguminosæ contain a specific poison which causes immobility.

Sippus, Schrymaerkert, Vallada, Schwanefeldt, Biber, Schmidlin and others attributed and ascribed nervous symptoms to the use of hop clover (*medicago lupulina*) chick vetch (*sathyrus cicera*) and the other leguminosæ, which produced restlessness, paralysis, roaring, sleepiness, etc., etc.

Dr. Winckler believes that the poison must be developed by heat and moisture, causing fermentation in these plants, which contain an excessive quantity of nitrogenous matter and phos-

phate of lime and magnesia. This fermentation exists more or less when the crops are fresh, and it is at this time that the disease is most frequent. After wet harvest seasons this exists naturally to a greater extent than after dry ones.

Colin made experiments by injecting the ferment of clover, but they were all negative and only showed that peptone was developed in the blood and that this latter lost its power of coagulating. Schmidt Mulheim, however, showed that peptone injected in doses of 0.30 to 0.60 grammes to the killogramme of the animal's weight produced nerve symptoms of a like character to the disease. In immobility we also find a thinness of blood and a lessened coaguability. The symptoms vary somewhat with the leguminosæ used (red clover, vetch, Jamacia cabbage tree, etc.) The colic from clover feeding in the summer is accompanied by severe brain symptoms (vertigo) that are identical with the symptoms produced by Schmidt Mulheims' peptone experiments. Dr. Winckler further traces a relationship between the frequency of the disease and the care taken in harvesting the crops and keeping them free from fermentation.

He acknowledges a predisposition on the part of individual animals, produced by hot stables, want of work, etc., and a predisposition on the part of lymphatic animals, whose loose connective tissue permits of easier serous exudation. The prophylaxis is naturally indicated. Sound proper drying of the leguminous crops and hygienic precautions in the stable and in the use of the animals. Very similar symptoms may be caused by the English ray-grass and other plants, and the author warns against a mistake in diagnosis. For treatment, Dr. Winckler thinks that carbonic acid is indicated, and recommends the use of bicarbonate of soda and tartaric acid.

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Almost simultaneously with the appearance of this article of Dr. Winckler's, Dr. Proust communicates to the "Académie de Médecine" at Paris a paper on "Lathyrisme médullaire spasmodique," observed in North Africa. This disease is frequent after bad crops, when the leguminosæ have been added to the wheat and other grain to make up the requisite amount of flour. Dr.

Proust has collected an extensive historical sketch and describes the same nervous symptoms as those found in Germany, but over a greater number of animals; horses, cattle, sheep, hogs, jackals and even birds are affected. He cites the result of the use of the vetch in the omnibus service at Rouen in 1867 under the veterinary service of M. Verrier. Here a quarter of the horses had the leguminous addition to their food, and promptly developed paralysis, immobility and roaring, which did not exist in the other stables, and ceased on the abandonment of the ration. Dr. Proust concludes that the leguminosæ, containing noxious properties, ought not to be used except within certain limits; that the lesion is a transverse dorsal tabes, sometimes accompanied by congestion and hemorrhage.

CANINE PATHOLOGY.

BY PROF. R. H. HARRISON, D.V.S.

(Continued from page 405.)

CASE No. 6.—*Ovarian Tumor*.—This animal, a valuable English setter, three years old, was sent from the country to be mated with a thoroughbred dog in my possession. With her came the history that she had a continual desire for the male, but after repeated coition with several males, fecundation had not taken place. She was in excellent condition, bright and lively, was placed with the dog, and after the usual period, all signs of œstrum ceasing, was returned to her owner, only to be sent back again in rut, after two weeks. At this time again symptoms of œstrum were present, with tumefaction of the vulva, mammæ, and a desire for the male. A careful examination was made, suspecting disease of the ovaries, but nothing abnormal was detected. After all appearance of rut had disappeared the male was placed with her, and refused at first to serve, but after much coaxing on her part, the act was accomplished.

The animal was again sent home, but returned in three weeks with the request to perform ovariectomy, as the owner had no hopes of breeding from her.

The operation was performed in the usual manner, through the linea alba; both ovaries were enlarged, the right the size of an English walnut, and the left of a small apple and weighing three and a half ounces.

These organs were not examined microscopically, but, viewed by a surgeon who has an extensive ovarian practice among women, they were pronounced tuberculous, as they were studded with tubercular nodules, and on section there appeared innumerable small abscesses.

The bitch recovered from the operation within a short time, and it is reported that there has been no appearance of the former trouble.

Since, the animal was accidentally shot. Unfortunately, I was not informed; it would have been of interest to have examined the other organs, and ascertained if tubercular deposits existed elsewhere.

○ CASE No. 7.—*Filaria Immitis*.—This patient, a Scotch terrier, was sent for treatment with the history, that when exercised or excited he would suddenly fall and lie gasping for breath, seemingly in a fit. In coming to the place he had walked about half a mile, and presented great distress in respiration, gasping for breath, the visible mucous membranes being of a livid hue, the pulse 148 to the minute and the heart beating tumultuously against the walls of the chest; the temperature was $100\frac{1}{5}^{\circ}$

After several hours, being kept very quiet, it was observed that the pulse, regular before, was now long, full and compressible, changing in character after the third beat, to quick and wiry, running so rapidly that it could not be counted, giving a similar impression to a hard string drawn rapidly over the finger. In making him assume the upright position the distress manifested before in respiration became quickly apparent, producing passive congestion of the lungs.

A diagnosis of heart disease was made, the lesion thought to be valvular disease with aortic regurgitation. Quiet and sedatives were ordered, and an unfavorable prognosis given.

During a visit of the owner, the excitement brought about by play and the sight of his master, proved fatal, the respiration be-

coming suddenly laborious, the animal dropping on his side and expiring in a few seconds.

An autopsy made immediately revealed passive congestion of the lungs with heart clot, with hypertrophy of the organ. In the auricle two thread-like white worms, (*Fillariæ Immitis*), were found, and one in the left ventricle.

CASE No. 8.—*Hermaphrodite*.—A half bred black and tan terrier, suffering from obstinate constipation, was left for treatment.

It was upon superficial examination a male, and I was somewhat surprised to observe the animal urinate as a female.

On closer examination the penis and testicles were seemingly well developed; there was present also an imperfect vulva and vaginal cavity, ending as far as could be ascertained, in a cul de sac; the urethra was normal and in the usual position. In passing a very flexible bougie through the urethra of the penis, an obstruction was reached just over the ischial arch, gentle pressure giving the feel of a saccular ending at the end of the bougie.

The vulva, imperfect in formation, were about one half the normal size, and lay very close to the skin, their presence being only detected by close inspection; the clitoris was absent.

Questioning as regards any venereal appetite, the owner said he had never noticed any, that other dogs would approach, but neither manifest any desire.

CASE No. 9.—*Imperforate Anus*.—*Absence of Rectum*.—This patient, a male hound puppy, ten days old, was brought to the infirmary, the owner stating that a few days after birth the pup would vomit after nursing, and at times noticed that the vomit contained what had the odor of fœcal matter.

The animal was emaciated and very weak, and on examination no anus was present, its usual place being occupied by a slight depression. On manipulation of the abdomen, the rectum was apparently empty, while the colon seemed well filled with ingesta. The division between the two was sharply defined.

An operation was performed to create a artificial anus, by making a crucial incision over the depression, through the skin, entering the pelvic cavity; the little finger was introduced but no

rectum could be discovered, and on manipulating the abdomen, the apparent division between rectum and colon remarked before, seemed to be the colon ending in a blunt point just outside the pelvic cavity.

The animal was destroyed and an autopsy confirmed the result of the examination, the colon ending in a blunt point, free and floating in the peritoneal cavity. Its contents were hardened, and the mucous membrane was softened and detached throughout.

The stomach was empty, and was highly congested, and had lost its saccular appearance to a marked degree, resembling more a cylinder.

Would it be reasonable or judicious in a valuable puppy, to attempt to stretch out the colon, and let it occupy the position of the rectum? In a similar case, this experiment would have been attempted if the strength of the patient had been sufficient to warrant it.

CASE No. 10.—*Traumatic Salivary Fistula*.—A half grown bull dog had suffered from an abscess on his cheek, which was opened by his owner, and had continued to discharge for over two months.

When first seen there was a small fistulous opening, constantly discharging saliva. It was situated at the seat of the upper molar gland, which it will be remembered is placed under the zygomatic crest, forming a lobe near the eye, and emptying by a single duct above the last molar tooth. The opening of the abscess, which was carelessly made, had opened the duct, and the fistula was the result.

A very small probe introduced through the fistulous opening reached the buccal cavity without difficulty.

The treatment consisted first, in a suture closing the opening, but proved a failure; next, scarification of the edges was attempted, keeping the parts covered with collodion, but after a fair trial was given up. Caustics of various kinds, including the *Egyptiacum* ointment, were used, but failed to accomplish the end. Success was finally attained by the use of the actual cautery. The platinum point was used, heated to whiteness, and introduced superficially. Two days afterwards the opening had closed and remained so permanently.

CASE No. 11.—*Cesarean Section*.—An English setter, primipara, was attended in difficult parturition. She had been in labor twenty-four hours, and had born two puppies. On examination a third foetus was found wedged in the inlet of the pelvis, dorso-lumbar presentation. It was pushed back and extracted without difficulty, by forceps, two other foetuses being made out in the left cornua.

The animal was left for the night, thinking that nature would accomplish the rest, as the strength of the mother was good, and much relief had been afforded by removing the foetus. The next morning found the animal straining violently, weaker, with a foetid discharge from the vulva, the position of the foetuses being the same as the night before.

As the foetuses were so far away, and the forceps of no avail, it was decided to operate.

She was etherised and an incision made through the left flank. The uterus was brought to the opening, and an incision made as high up as possible, and the dead foetus together with their membranes removed. The cornua was dressed antiseptically and the external opening closed by quill sutures and a thick layer of collodion.

After twenty-four hours, she began to nurse her two puppies, and had quite recovered from the operation and ether.

The wound did very well, healing by first intention in its upper two-thirds, and by granulation in the remainder, within a short time.

A similar operation was performed on a small Skye terrier, which was in pup by a full sized pug. Parturition was rendered impossible by the size of the foetal head. The operation was performed early, and the lives of both mother and offspring were saved.

In cases where the operation is indicated it is best to operate as soon as possible, for later on the strength of the mother is weakened, and the lives of the young are endangered.

The operation should be performed through the flank, as the incision through the linea alba interferes with the function of the mammary glands; besides, the wound does not heal as kindly, for at this period the mammæ are more or less swollen and congested.

PHYMOSIS.

A CONDENSATION AND TRANSLATION FROM THE "HANDBUCH DER CHIRURGIE," BY C. H. HERTWIG.

By A. J. MURRAY, M.R.C.V.S.

No description of this condition is given in the only existing English work on veterinary surgery, and even in the recent excellent French work of Peuch and Tonssaint it is omitted. As Hertwig, however, has not only described phymosis, but the diseased states which sometimes precede and lead up to it, I will place his remarks on the subject before the readers of THE REVIEW.

When the sheath (prepuce) is contracted in front of the penis, so that it cannot be drawn out of the sheath, the condition is termed phymosis. Phymosis generally arises from an inflammatory exudation and thickening of the skin at the anterior portion of the sheath; it may be caused by blows, kicks, wounds, etc. It may be recognized by the fact that the animal does not draw his yard out of his sheath, but urinates in his sheath; in consequence of this there is sometimes a fluctuating swelling of the sheath, which by-and-by disappears, through the continual dripping of urine from that part. If an examination is made, it will be found that the entrance to the sheath is very much narrower than usual, and that the skin is thickened, drawn together, and indurated.

When phymosis is of recent date it may be treated by means of poultices and demulcent and anodyne solutions, by solutions of potash, or by the use of mercurial or iodine ointment. Sometimes by pushing a sponge into the entrance of the sheath the diameter of that part may be gradually widened. Should the treatment recommended, however, prove unsuccessful, or should the diseased state of the sheath be of old standing, and be found to arise from a swollen and indurated state of the skin and cellular tissue, or from the presence of warts or other diseased growths of old standing, the under surface of the sheath must be divided longitudinally up to the seat of contraction, so as to enable the penis to be drawn out of the sheath and the urine to be discharged in the natural manner. The operation should be performed with

a probe-pointed bistoury and a director, which should be passed between the penis and the lower surface of the sheath. Hertwig says in performing this operation it is not necessary to cast animals of a quiet disposition. He also advises the removal of any diseased formations which may be present in the sheath, and that the lips of the wound should be treated so as to prevent adhesion.

He also describes, at considerable length, "inflammation of the sheath," which throws considerable light on the pathology of phymosis, and enables his readers to form a better conception of the nature of that disease.

EDITORIAL.

STATE VETERINARY SOCIETIES.

We have often called the attention of our readers and that of the veterinary profession in the United States to the necessity which presented itself of coming together and organizing State Veterinary Societies. We have done so, because we were satisfied that by the formation of these regular bodies, a great deal of harmony and good feeling could be established between the practitioners of each State; a beneficial exchange of thoughts could be secured by the discussions which would take place at the meetings; and because we thought they would form the nuclei, which, gathered together, would serve to establish a National Association which would properly represent the veterinary profession of America.

It has been with that thought in view that we have gladly mentioned and carefully watched the movement which has been started in the western part of the country, and which we have urged ought to be followed in the Eastern States. We had hoped that those societies which were already formed in Michigan, Ohio, Illinois, &c., were constituted as every good lover of the profession would wish them to be, and we never expected that the organization and the carrying on of these societies could be otherwise than strictly professional. Were we in error? It is for the veterinarians of those States, and who belong to those societies, to let the profession know. It is to be regretted that so far as the Excelsior

State is concerned, the steps which were taken in October last, and to which we have already alluded, have proved far from giving evidence as to the correctness of our supposition. It is to avoid the repetition of similar action that we recommend again to the veterinarians of the States where no organization is yet in existence, to lose no time in taking the proper steps to unite themselves into professional bodies.

There are now in many States—in Massachusetts, New Jersey, Connecticut, Rhode Island, Maine, and perhaps several others—a sufficient number of regular graduates of various schools to form these associations. They should do so at as early date as possible. They should have their constitution and by-laws, and make them as liberal as they can be made. They will find in their districts gentlemen practising veterinary medicine, self-made men, who deserve much credit for what they have done, though deprived of the opportunity of obtaining a college education. These men cannot be ignored. They in many instances are far superior to the regular graduates in professional knowledge and in ethical conduct, and recognition ought to be granted them. A licentiate degree could be given to those of them who could fulfil certain requirements. The Americans have taken much from their English cousins. In following the example set by the Royal College of Veterinary Surgeons in England, American veterinarians would not be following one of the worst ways of English people.

Those societies once formed, a National Association could readily be organized. Already a large nucleus for such an organization exists. Formed years ago, it is in a flourishing condition. The treasurer reports annually an increase in the capital entrusted to his care; for twenty years she has held her meetings regularly, and many interesting subjects have been discussed; she is known all over the world, though a few at home may claim ignorance of her existence. It will be to the United States Veterinary Medical Association that these State societies will naturally attach themselves.

The next meeting of that Association is to be held, we understand, in Cincinnati, in March. No doubt many veterinarians of the East will go there to meet their colleagues of the West, and

we feel confident that the delegates of the State societies of New York, Massachusetts, Pennsylvania, New Jersey, Connecticut and Rhode Island will, with others, meet in the great metropolis of Ohio, those of Wisconsin, Illinois, Iowa, Michigan and Ohio.

Let us all work harmoniously in this movement; let us do it not in the interest of one, nor in that of a few, but for the benefit of all; for the advancement and elevation of the veterinary profession of America; for the destruction of the vampire of veterinary science—the crushing of quackery, either clad with the garment of a diploma—which the holder dishonors—or covered with the mantle of ignorance and charlatanism.

NOTICE.

Will any of our readers who may know the present address of John Bretherton, M.R.C.V.S., late of the 7th United States Cavalry at St. Paul, Minn., please communicate with the Editor.

REPORTS OF CASES.

RUMENOTOMY.

BY C. H. PEABODY, D.V.S.

Nov. 15, 1882, I was called four miles into the country to a cow on the farm of Mr. L. M. Blodget, where I found a full-blooded Ayrshire cow suffering from plenalvia. The history of the case was that the cow had been unwell for a few days, neither eating nor ruminating. I decided to operate at once. At this time the pulse was 72; respiration 28, and very labored; visible mucous membranes of a bluish-lead hue; temperature 104½°. Having secured the animal with the off side to a partition, with my assistant, I proceeded to operate as follows: First clipping the hair from the nigh side, I made a vertical incision through the skin from above downwards for about 8 inches, in the left hypochondriac region. After stopping all hemorrhage, and using a carbolic solution, I separated the muscular tissue by dividing it in the direction of the fibers, and holding it apart by flattened hooks of bent steel, about one inch in width and rounded

at the point. After separating the muscles and stopping all hemorrhage, which was very little, I opened the abdominal cavity by cutting through the peritoneum in an oblique direction, corresponding to the fibers of the transverse muscle of the abdomen, exposing the rumen, pulled a portion of the rumen through the opening, and making a small incision through the walls of the rumen, allowed some gas to escape. I then separated the walls of the rumen by cutting with the scissors freely enough to admit my hand, being careful to place a towel wet with a weak carbolic solution between the muscles and rumen and (by putting the cut edges well out it was hardly possible for anything to get into the abdominal cavity), I removed seven pecks of dry hay, chaff straw and corn stalks. I then, through the opening in the rumen, turned an injection made of

℞ Magnesia Sulphate, a.a. ʒ iv.
 Sodium Chloride.
 Aqua (quite warm) O vi.

Quite a lot of feed was left in the rumen. After cleaning the edges of the wound thoroughly, the wound was sewed with a continuous carbolised cat-gut suture, turning the edges in and bringing the peritoneal coats of the rumen well together. After it was well sewed I dropped it into the abdominal cavity, sponging what little hemorrhage was visible with a weak and warm solution of carbolic acid. Then bringing the peritoneum together with carbolised cat-gut sutures, I let go of the muscular tissue and it closed the opening completely. No sutures were used through the muscular tissue. I closed the skin with a quill suture of four pieces of tape. Treatment:

℞ Tinct. Opium ʒ vi.
 Spts. Juniper O j.

M. S. Give 2 ʒ of mixture every two hours and warm sloppy drinks if patient will drink them.

Cover the wound with a compress wet with carbolic solution.

Nov. 16th. Pulse 60, respiration 20, temperature 103°; looks well, drinks freely of warm drinks; fœces quite hard. Same treatment, every three hours.

Nov. 17th. Pulse 65; respiration 22; temperature 103½°; appears dull. Gave

R Sps. Juniper	3 ii.
Tinc. Gentian Co.	3 iv.
Tinc. Capsicum	m xx.
Sps. Amon. Aromat	3 i.

M. S. Give every three hours.

Nov. 18th. Wound looks well; pulse 60; respiration 18; temperature 101°; fœces soft; looks bright; drinks well; same treatment every six hours; gave a few boiled roots and hay.

Nov. 20th. Pulse 62; respiration 16; temperature 101°; hay and gentle medicine twice a day.

Nov. 22nd. Pulse, respiration and temperature about normal. Edges of wound look well; not much suppuration. Dress with chloride zinc solution. Order it kept clean; remove two sutures; no treatment; feed light.

Nov. 27th. Looks well. Temperature, pulse and respiration not taken; wound looks fine. Dress with chloride zinc solution. Remove all the sutures.

Dec. 7th. Wound all healed; turned loose into yard.

Jan. 22nd, 1883. Saw the cow to-day and she has had, this morning, a good full sized heifer calf alive.

Providence, Jan. 25th, 1883.

EXTRACTS FROM FOREIGN JOURNALS.

RIGHT STRANGULATED HERNIA—TETANUS, TWENTY-FOUR DAYS AFTER THE OPERATION—RECOVERY.

BY M. PALAT.

A stallion, 11 years old, is taken with a violent colic. The animal presents a hard, painful tumor in the right inguinal region. Every few moments he drops on his hind quarters, the hocks are flexed, and the animal needs punishment to prevent his lying down. He is operated upon at 11 o'clock in the evening. Thrown on the left side, the right leg put is put in position as for castration, a long incision is made in the hernial tumor, until by careful handling of the instrument the vaginal sac is opened toward the posterior extremity of the testicle. An escape of serosity takes place and the small intestines appear of grey-reddish

color. The inguinal sac is freely open and the index finger introduced into the canal discovers a strong strangulation, which renders it very difficult to pass the extremity of the finger into the *neck* of the sac. A blunt bistoury is then introduced flatwise along the finger, and when at the place of strangulation, the division is made by a turn of the instrument with the sharp edge. The division is again carried upon another part of the strangulation, to facilitate the reduction, which is effected with the hand carefully oiled. A clam is placed as high as possible, and the animal allowed to get up. The next day, as the parts are considerably swollen, the animal is thrown down again and the parts well cleaned with carbolized water. Five days after this the clam sloughs off, and from that day every thing is doing well. About two weeks later a large abscess is found and opened in the right groin. Three days after there is a slight rise of temperature—some drafts in the stable are considered as dangerous and are carefully closed up.

The next day, the twenty-fourth after the operation, the symptoms of tetanus are well marked. The treatment consists in a pint of spirits of turpentine mixed with white of eggs. This is given in two doses with linseed tea and honey. Another pint is given by rectal injection, in small quantities repeated. The body is heavily wrapped with blankets, and the animal placed loose in a dark box. The next day the animal is worse. About two ounces of laudanum are given one-half per mouth with a syringe, the other per rectum. Fumigation with ether, and wound dressed with tincture of opium. This treatment is continued with variations of more or less improvement in the symptoms, until the thirty-fifth day, when he is discharged.—*Recueil de Medecine Veterinaire*.

NEW TREATMENT OF QUARTER CRACKS.

BY M. COUSIN.

By this new and simple mode of operation, the author claims to have some important points, in the advantages obtained by his process. Applicable to all simple solutions of continuity, that is, when there is no disease of the laminae or of the bone, it is said

to require not *one day of rest*, and that nine times out of ten the cure is obtained by a simple operation, consisting of a *transversal* groove towards the upper third of the hoof—nothing more. This groove is made with the drawing knife, right across the crack (quarter, toe or sand crack), about one inch long and half an inch wide (or three centimeters long and one wide). It is made down to the keraphyllous structure, which may also require to be divided. It is suggested that other simple surgical means which may present themselves in the case must not be neglected. Hoof ointments are recommended, but baths are objectionable. Sawdust bedding for the fore feet is advantageous.—*Recueil de Medecine Veterinaire*.

PATHOLOGICAL PHYSIOLOGY.

UPON THE CULTURE OF THE MICROBE OF GLANDERS AND UPON THE TRANSMISSION OF THE DISEASE BY THE LIQUIDS OF CULTURE.

BY MESSRS. BOUCHARD, CAPITAN AND CHARRIER.*

The great and important theory which defines contagion as a “function of a living element,” under whatsoever form it may be manifested, as well in the vegetable as the animal kingdom, has received fresh and powerful confirmation from the researches into the nature of glanders as reported by Professor Bonchard, and his collaborators, Messrs. Capitan and Charrier, in a communication forwarded by them through Professor Brouardel before the Academy of Medicine on the 27th of December last.

Indeed, it is there conclusively demonstrated that glanders must from the present time, and without further question, hold its place in the category of microbial diseases. Its microbe has been seen, isolated, cultivated in its proper media, and recognized as an active virulent element, after a series of successive cultures, the virulent matter having been taken directly from the lesions proper to glanders, and inoculated by natural methods into susceptible organisms.

The proof is complete. The microbe *alone*, freed from all

* Report of Mr. Bouley before the Academy of Medicine of Paris.

organic mixture by successive cultures, which purify and segregate it, and allow the observer to *see* it alone, at its work in the organization where it is introduced; this microbe alone gives rise to the manifestations of glanders, characterized by all its symptoms and lesions, with as much certainty as when the disease proceeds from the virulent matter inoculated in its natural state.

Here there is a new advance into the domain of microby, this new world, where many discoveries are yet in reserve, waiting for those explorers who, provided with all the necessary means, have devoted themselves to the researches rendered so delicate and difficult by the excessive smallness of the beings whose existence is to be observed and their proportions recognized.

Before proceeding further, we desire to improve this occasion to recall the large share of credit which belongs to Prof. Chauveau of Lyons, for aiding in the solution of the problem of the "intimate nature of virulency." Every one remembers the ingenious experiments by which he elucidated the theory. Borrowing from Spallanzani the method of dilution by which that great physiologist demonstrated the agency of spermatozoids in the spermatie secretion, Mr. Cheaveau has shown that a dilution would act in the same manner for virulent elements as for the sperm, viz., that they reduced their ability in proportion to their extent, and that in both cases it, so to speak, rendered it aleatory; the chances of manifestation of this ability being conditioned on the presence of the living particles in the drop of tested dilution, spermatozoid in one, and in the other the corpuscle proceeding from the virulent matter.

Mr. Chauveau did not remain satisfied with this first mode of demonstration. He had recourse to the method of *diffusion* to prove that, in virulent matters, the activity proper was inherent, not in the liquid substance susceptible of diffusion, but in the solid particles which remain at the bottoms of vases, and which the motion of diffusion failed to carry. Again, he has made as complete as possible the demonstration that the figurative corpuscles of virulent liquids *alone* possess the specific properties of those liquids, by showing that, even after five successive washings, in a large quantity of liquid, these corpuscular elements are the

true agents of virulency, so long as their inoculation in susceptible organisms gives rise to the manifestation of the disease from which they proceed, with just as much certainty as the inoculation of the natural virulent matter.

Nothing can be more demonstrative than these experiments. They prove, in a general way, the existence of *virulent semence*, constituted by insoluble corpuscles, which are the necessary agencies of contagion.

These admirable discoveries constitute an important epoch in the general history of virulency, since from them have proceeded the first positive conceptions of the nature of the contagious elements in diseases not acknowledged as parasitical. Before their development, the reign of uncertainty and obscurity was complete. In their presence, light began to be thrown upon the phenomena of contagion, which had hitherto stood upon a mere basis of hypothesis. Mr. Chauveau would, no doubt, have made still further progress had not his mind been preoccupied and dominated by the idea that between contagious diseases, properly so called, and those in which the virulent element was constituted by a parasite, the distinction was absolute, and that they belonged each to a category essentially foreign to the other.

It is this idea which deterred him from experimenting with the cultivation of these corpuscles, and demonstrating with his admirable sagacity the inherency of virulent activity, to the exclusion of the solid or liquid organic matters with which these corpuscles might be associated.

This division, which seemed to be well established when Mr. Chauveau made his experiments, has since, and by Mr. Chauveau himself, been recognized as an erroneous expression of the real nature of the facts.

As our knowledge progresses and our researches are multiplied, new facts appear to convince us that the phenomena of contagion are determined by one converging law in both living kingdoms, and whatever may be the species of disease, whether of animal or vegetable organisms, the rule is invariable that wherever there is contagion it proceeds from a living agent, which is the necessary factor in the case.

When the living element of a contagion of a large size pre-

sents itself, the acarus of scabies for instance, which we take as a type, in this point of view, the *consensus* is unanimous; there is no more room for doubt; but it is no longer so when the question is one of microbes and of their action, as instruments of contagion and as causes of the numerous lesions peculiar to each species of contagious disease.

Many are not yet prepared to admit this conception, simple as it is, and which so thoroughly explains so many facts, and it thus becomes necessary to insist on the demonstrations which belong to this great question of general pathology. The last researches of Messrs. Bouchard, Capitan and Charrier give us this opportunity, and we shall now see how the discovery of the microbial nature of glanders will enlighten the evolution of the lesions which characterize it and that of the symptoms correlative to it.

But, first, how did those gentlemen recognize and establish the fact that there is a microbe in glanders, and that it determines the disease in a manner so unquestionable, and gives it its essential character?

On this point, all the elements of proof must be placed before the Academy, so that there can be no further hesitation in admitting the evidence of the fact.

The researches of Mr. Bouchard and his assistants go back to November, 1881. From that time forward they have been making cultures of the matter taken from an abscess opened on a mare whose farcinous case was reported in the thesis of Mr. Clement in 1881.

The liquid of the second culture of this matter, inoculated to three guinea-pigs, produced in two of them, after twenty to twenty-four days, a fatal disease, characterized by pulmonary and ganglionic lesions, resembling very much those of glanders. The third guinea-pig that was killed presented the same lesions. With the matter taken from one of its glands, Mr. Arloing, of Lyons, inoculated a donkey, upon which the inoculation seemed to be negative. When killed three months later, however, this animal exhibited the pulmonary lesions characteristic of chronic glanders.

In July, 1882, these experiments were renewed with pus from a glandered horse.

The 4th of that month, a culture was made in a vase with a

piece of a nasal ulcer taken from a horse just killed, and another with a small piece of tuberculous spleen. The next day a small quantity of these first cultures was taken by Mr. Arloing, who on the 10th of July inoculated with it two donkeys.

On the 19th, the one that had been inoculated with the culture of the nasal ulcer died, and on the post mortem exhibited the very characteristic lesions of glanders in the respiratory and reproductive organs.

On the 28th of July, eighteen days after the inoculation, the other died. No tubercles appeared in the lungs, but ulcerative lesions were present in the first respiratory and digestive apparatuses.

These facts were, however, not accepted by the gentlemen as sufficiently positive, because the inoculation had been made with the liquids of first and second cultures, in which it might be supposed the microbes were not entirely free from other particles contained in the matter they had used.

According to Mr. Bouchard and his assistants, it is only the fifth culture that can be considered as pure ; that is, as composed entirely of microbes of new generations. Their statement is based upon this principle :

They say that "if it is considered that successive cultures are made by adding to the bouillon (the liquid of culture) about one-thousandth part of the preceding culture, that in some virulent liquids the microbes are so closely pressed and so small, that each milligram may contain one thousand millions of them, it will be understood that, considering only the microbes already existing in the liquid which serves for the first semination, there may be for each cubic centimeter of bouillon of the first culture one thousand millions of microbes coming directly from the diseased animal ; one million in the second, one thousand in the third, and one in the fourth ; while for the fifth their remain nine hundred and ninety-nine chances in a thousand that only one microb of direct origin will be found."

The fifth culture only giving guarantees that its virulent properties proceed from microbes of new generations, it is with these liquids of the fifth culture that Mr. Bouchard and his

assistants made the inoculations recorded in their paper. On the 11th of August, 1882, a large cat was inoculated with the liquid of the fifth culture, obtained from the nasal ulcer of the horse killed on the 4th of July. This cat died the 5th of September, with a suppurative tumor of the left testicle and of the inguinal glands. On the 5th of September another cat was inoculated with a piece of a gland of the cat which died on the 21st of that month, with a chancre at the point of inoculation, tumefaction of the inguinal glands, and miliary abscesses in the lungs.

On the 21st of September a third small cat was inoculated with pieces of gland from the second. Death occurred on the 28th, with a chancre at the point of inoculation, nasal ulcers perforating the septum, subperiostic abscesses of the nose, pulmonary abscesses, and tumefaction of the axillary ganglions.

On the 27th of September, while this last cat was yet alive, a little bloody serosity taken from its nasal swelling was used in inoculating a guinea-pig; he died on the 28th of October, thirty-one days after inoculation, with a chancre at the inoculated spot, a swelling of the inguinal glands of the same side, and pulmonary abscesses, surrounded by a hemorrhagic areola.

On the 1st of November, 1882, Mr. Arloing, with the pus of a pulmonary abscess of this guinea-pig, inoculated a donkey, which died on the 11th, ten days after inoculation. His lungs were filled with the nodules of acute glanders.

(To be continued.)

CHICAGO CONVENTION OF STOCKMEN.

(Comptes Rendues.—From the National Live Stock Journal.)

Last September, Dr. Loring, Commissioner of Agriculture, was induced by a resident of the central portion of this State to call a convention of those interested in live stock matters, to meet in this city during the week of the Fat Stock Show. There has been a great deal of criticism of the course pursued by our Government in relation to contagious diseases of live-stock. Since the appointment of the Treasury Cattle Commission, the restrictions on our live-stock landed in Great Britain have been made

more stringent and the management of our quarantine stations has been such as to cause them to be regarded by many as an imposition and a farce. Some were of the opinion that the convention was called principally in the interest of the Commission and the veterinarians employed by the Government.

As will be seen by the following report, which want of space compels us to curtail somewhat, there was not entire harmony in the views of those who took part in the debate as to the best course to be pursued, but it was agreed that the National Government ought, through competent persons, to take prompt and effective steps to stamp out contagious diseases, especially among the cattle of this country.

The meetings were held on Thursday and Friday, Nov. 15th and 16th, a large number of those in attendance at the Fat-Stock Show and public sales that week being present.

At half-past ten o'clock Thursday morning, Prof. G. E. Morrow called the meeting to order, and read a letter from Commissioner Loring, expressing his regret that owing to illness he was not able to be present.

The roll-call of States and Territories was then proceeded with, after which, on motion, Prof. Morrow was chosen to act as temporary Chairman, and L. S. Coffin selected as Secretary.

Committees on permanent organization and on order of business were appointed.

Mr. John Dunne, British Vice-Consul at Chicago, by request of his Government, attended the convention, and was accorded the privilege of participating in any discussion.

Gov. Hamilton, of Illinois, was introduced, and addressed the meeting on the subject of contagious diseases in this State. He spoke of the action taken by the Legislature in reference to the glanders, the result of which was, that the spread of this disease had been checked. He urged the importance of some effective action being taken by the General Government to protect the live-stock of the country from contagious diseases, and, in closing, expressed the hope that this meeting would be productive of good results.

Hon. J. B. Grinnell, of Iowa, said he would like to hear from

some of those present as to whether disease actually existed among their cattle, and, if so, to what extent.

Mr. R. D. Kellog, of Iowa, said he thought the cry of "fire" was raised too frequently; in fact, when not even smoke was visible. He was of the opinion that the cry of disease, now heard in many parts of this country, and also sent across the water, was calculated to do much damage to the live-stock interests of America. The cry about hog cholera and kindred diseases was simply a cry about things of the past. With the exception of glanders among horses, he was not aware of the existence of any contagious disease among stock.

Mr. W. B. Parsons, of Ohio, stated to the convention] that although he had traveled quite extensively through the cattle-raising districts, both in the Eastern and Western States, he had not heard of any contagious disease among stock. There were a few cases of death among weak calves, produced by cold or lung trouble, but, such sickness should not be designated as pleuro-pneumonia.

Dr. Prentis, of Illinois, indorsed the remarks made by the previous speaker. In reply to a question asked by one of the gentlemen present, he stated that up to the present time he had not known of the existence of one case of genuine pleuro-pneumonia among the cattle of this country.

Mr. J. Clark, of Iowa, said he did not know of any man in his State who anticipated trouble from pleuro-pneumonia. Contagious disease had never found its way into any of the stock raised in Iowa. He had been in England recently, and could bear testimony to the fact that the American shippers suffered much loss by the erroneous belief on the other side of the ocean that our cattle were diseased.

Mr. L. S. Coffin, of Iowa, said he heartily agreed with Mr. Clark on some points, but differed with him on others. So far, Iowa was free from disease, but how long might it remain so? So long as disease existed in any part of the country, no one State could feel absolutely safe; danger existed, and would continue to exist until every vestige of the disease was eradicated.

Dr. Gadsden, of Pennsylvania, maintained that the English

people were fully aware of the fact that disease existed among our cattle. They had agents in many parts of this country, who kept them thoroughly posted on the condition of our cattle.

The report of the committee on permanent organization was then submitted. They recommended for President, J. S. Williams, of Kentucky; Vice-Presidents, G. E. Morrow, of Illinois, Alfred Butters, of Colorado, Edward A. Powell, of New York, and M. H. Cochrane, of Canada; Secretary, Thomas Sturgis, of Wyoming; Assistant-Secretary, Edward B. Emory, of Maryland. The report was adopted.

Senator Williams, on taking the chair, thanked the meeting for the honor it had conferred on him. He said he had endeavored to procure some legislation on the subject of contagious diseases among stock, but he had found that members of Congress knew but little about the matter. He referred to the very large amount invested in cattle, and urged the great importance of some action being taken by the General Government that would entirely stamp out contagious diseases among the cattle in every part of this country. By this means alone could the British Government be convinced that it was safe to admit our stock. Once accomplish this, and our foreign trade would be very largely increased.

Mr. Thomas Sturgis, of Wyoming, who had been chosen Secretary, said that, above all things else, the success of Wyoming depended on the cattle-raising industry, and in view of this, action had been taken to prevent the bringing in of any diseased stock. No cattle could be taken into the State, except with the approval of the Territorial Veterinarian. It was evident, from the report of the Commissioner of Agriculture, Dr. Loring, that disease existed in some portions of the Eastern States, and it was very important that steps should be taken not only to prevent its spread, but to stamp it out entirely.

Prof. Law read a lengthy paper entitled "Contagious Diseases of Animals, and the Means of Suppressing and Extinguishing them." In this he referred to Texas fever, pleuro-pneumonia, tuberculosis, glanders, and other diseases known to exist in different sections of the country, and closed by saying, "the only

sound and just method of dealing with the disease must be directed and sustained by the National Government."

When he had finished reading his paper the meeting adjourned until 5 o'clock.

AFTERNOON SESSION.

Upon reassembling, a committee on resolutions was appointed, after which Dr. Salmon, one of the veterinarians of the Agricultural Department, read a paper on "The Prevention of Contagious Diseases of Animals in America." He said, no case of pleuro-pneumonia had been found west of the Allegheny Mountains, and that with the exception of a few cases in Connecticut, Pennsylvania and New Jersey, none could be found except in the neighborhood of New York, Brooklyn, Newark, Baltimore and Washington. He did not think it would be a great task to free the country from this disease.

The present Secretary of the Treasury Cattle Commission made the surprising assertion for him, that there had been much idle talk about pleuro-pneumonia, that no cases of foot or mouth disease had ever existed among American cattle, and that the shipping of eastern calves west was a great source of danger, but the business was not profitable and was dying out.

Mr. Bartlett answered, that he had handled 200,000 of those calves during the last four years, and had found no traces of contagious disease among them, and Prof. Law corrected the statement in reference to foot and mouth disease by saying, that while it had never originated among our cattle, some cases had been found among imported animals.

Dr. J. D. Hopkins, veterinarian for Wyoming, read a paper on "Pleuro-pneumonia," and urged that if Congress could not devise some plan by which the disease could be entirely stamped out, that means should at once be adopted to prevent its spreading beyond its present limits. He claimed that safety was to be secured only by National legislation that would place the matter in competent hands, and urged the importance of each State having a veterinary department.

A recess was then taken till 9 o'clock, P. M.

EVENING SESSION.

On the Convention being called to order, Dr. J. W. Gadsden, of Philadelphia, read a paper on "Contagious Diseases in Cattle; How they are Imported and What they Cost." The three diseases named were rinderpest, pleuro-pneumonia, and foot and mouth disease, the former never known here, and the others traceable to imported stock. To have effect action must be taken by the National Government, and not left to local authorities. He added that there was no quarantine enforced at Philadelphia, and cattle landed there were taken into the country by their owners. Prof. Law replied that the Treasury Cattle Commission was not aware of this, and were not responsible, as the regulations were that no cattle should be landed except at points where preparations had been made for quarantining stock.

Mr. L. S. Coffin said that the Convention should take such action as would secure protection from further danger of bringing disease by importations. Considerable discussion followed, after which several members were added to the committee on resolutions, and the convention adjourned, to meet at 8 o'clock the next morning.

FRIDAY MORNING.

The convention being called to order, the Chairman announced that the reading of the resolutions would be the first business, and, on motion, it was agreed that they should be read and acted upon separately.

RESOLUTIONS.

Whereas, The existence of disease among the domestic animals in the United States has seriously affected the exportation of live stock, the suspicion that attaches in foreign countries to all neat cattle and swine of the United States on account of the existence of diseases in certain localities has greatly lessened the sale of American meats in foreign markets; and

Whereas, The existence of pleuro-pneumonia in certain of the Atlantic States, introduced from time to time by the importation of live stock from European countries, constantly threatens the spread of the contagion to the Southern and Western States and Territories; that the disease is of such a character that State

legislation can only give a partial relief; that prompt and appropriate legislation on the part of Congress to eradicate the disease in the infected districts is imperatively demanded; that should the great ranges of the West become infected with the disease, it would be impossible to stamp out the plague, except by the total destruction of the herds, and at a cost of hundreds of millions of dollars; therefore,

Prof. J. P. Roberts, of New York, suggested that the words "certain of the Atlantic States," in the above, be changed to read, "certain portions of a few of the Atlantic States," which would be correct, and have a better effect.

Mr. Emory, of Maryland.—It is almost impossible for us to say to what extent the disease exists, as it is one that fluctuates. I do not think there is a case in Baltimore at present. The last case of pleuro-pneumonia that we had came from West Virginia.

Prof. Law.—With reference to the remark just made by Mr. Emory, I will say that I am as confident as I am of my own existence that disease does exist in Baltimore, and an inspection of the place will prove my assertion. Maryland has not been inspected.

Mr. Emory.—We have a State Veterinarian in Maryland, and he makes very careful examinations.

Prof. Morrow.—If we specify the States in which disease is supposed to exist, we will get into an interminable debate. I would therefore move that the words, "a small portion of a few of the Atlantic States," be inserted in the preamble, as a substitute to what now appears.

Mr. Emory.—It is not fair to say that Maryland is an infected State at present. Our State Veterinarian makes an examination of the stock yards at Baltimore daily, and he says we are free from disease.

Prof. Law.—How many head of cattle enter your stock yards each day?

Mr. Emory.—Perhaps several thousand. It is a great stock centre.

Prof. Law.—And your State Veterinarian *examines* all of them?

Mr. Emory.—Well, he passes through the stalls, and he is

more in favor of killing an animal than retaining doubtful cases on hand.

Prof. Morrow's amendment to the preamble was then put and carried.

The first resolution offered for adoption was as follows :

Resolved, That we urge upon the proper authorities the importance of a thorough inspection of all live stock and meat products shipped to foreign countries.

Prof. Law was opposed to the adoption of the foregoing. He said : I think we are asking too much. I move that this resolution be stricken out, as it favors an unnecessary expenditure, and can do no practical good. Texas fever will remain latent in the system for a month, without the knowledge of any person.

Col. Scott, of Iowa.—I would be in favor of striking it out, as we have not met here for the purpose of protecting the rights of other countries. What we want to do is to protect ourselves.

Mr. Grinnell.—I hope we will sustain the resolution as reported by the committee. I think it covers the ground. There is a cloud upon us, and we propose to remove that cloud. I hope that we will let this resolution stand, and adopt it as it has been sent to us.

After some further remarks, the resolution was put to the meeting. The vote was so close that the Chairman was unable to give a decision as to what the result had been. He therefore called for a show of hands, with the following result : For the adoption of the resolution, 25 ; against it, 27. The resolution was lost.

The second resolution offered for consideration was as follows :

Resolved, That this Convention heartily endorses the action of the Secretary of the Treasury in enforcing quarantine against all imported cattle, for the purpose of preventing the further importation of foreign contagious diseases ; and we recommend that the regulations be enforced, with rigid impartiality, against all importers ; and, further, that Congress should be asked to confer authority upon the Treasury Department to quarantine imported sheep, swine, and goats.

Prof. Law said : I am opposed to the adoption of this resolu-

tion on a basis similar to that of the last. To carry out its provisions would require a considerable sum of money. Sheep and swine are examined on landing, and that is sufficient. This would simply incur the expenditure of a large amount of money, without getting any adequate compensation therefor. I therefore move that the part of it relating to sheep and swine be stricken out.

Prof. Law's amendment was lost, and the resolution, as above, was put and carried.

The next resolution was as follows :

Resolved, That we recommend that, for the purpose of reaching definite and conclusive action, a committee of five be appointed by the Chairman of the convention, whose duty it shall be to present a memorial to Congress setting forth explicitly the loss and damage we have sustained in our business, not only by reason of the fact that contagious diseases do exist to a limited extent in this country, but also of the much greater loss and damage we sustain by reason of the embarrassing restriction, and, in some cases, prohibitory regulations which have been adopted by foreign Governments against American live stock and their meat products. We further recommend that said committee be instructed to confer with the Secretary of the Treasury, the Commissioner of Agriculture, and such other officials and persons as to them shall be deemed proper, and shall thereafter suggest to Congress such points of legislation as they may deem best calculated to protect our interests and remove foreign prejudice against our meat productions. We further recommend that all live stock organizations in the United States be invited to co-operate with us by advice, suggestions and cash subscriptions, to be used in defraying the necessary expenses of said committee ; and, further, that the said invitation be extended to transportation and stock-yard companies, beef and pork packers and exporters, and all others having an interest in common with us in this matter. We further recommend that the President of this convention be requested to invite the Hon. George B. Loring, Commissioner of Agriculture, to act as ex-officio Chairman of this committee of five before referred to.

Mr. Grinnell said the resolution met with his approval, but moved that the committee be increased from five to nine members.

This was agreed to, but subsequently the Secretary moved to

reconsider and further amend it, by striking out the words "a committee of five" and substituting therefor "one delegate from each State represented."

This was agreed to by unanimous consent, and the resolution, as amended, was adopted.

The following committee was then selected: Hon. J. M. Carey, Wyoming Territory; Hon. Columbus Delano, Ohio; W. J. Wilson, Colorado; N. M. Curtis, New York; D. W. Smith, Illinois; Julius Lemoyne, Pennsylvania; J. B. Grinnell, Iowa; T. C. Anderson, Kentucky; G. B. Loving, Texas; H. Smith, Wisconsin; J. M. Kirk, West Virginia; Prof. S. R. Thompson, Nebraska; John Overton, Tennessee; Prof. F. J. Hunt, New Jersey; John M. Robinson, Maryland; Prof. D. E. Salmon, District of Columbia; Dr. L. S. Thayer, Massachusetts; W. Ball, Michigan.

The following resolution was adopted:

Resolved, That the Secretary be appointed from a central point in the West, who shall correspond with the members of the committee selected to go to Washington; shall ascertain what members will actually go; shall communicate to each of those members who are to be their associates, and appoint a fixed day for their meeting in Washington, and thus insure unanimity of action. He shall provide the Chairman with proper credentials and obtain proxies if originals cannot go.

Hon. J. B. Grinnell was elected Secretary of the committee referred to in the above resolution.

The following resolutions were read and adopted without debate:

Resolved, That the committee of this convention memorialize the Legislatures of the several States or executive authorities to urge upon them the importance of establishing a veterinary or health department, for the prevention or spread of all such contagious diseases.

Resolved, That the thanks of this convention are due to Hon. George B. Loring, for the hearty and efficient manner in which he has co-operated with the live stock breeders of the United States, and the eminent aid he has given us; and that the President of this convention be requested to invite him to act as ex-officio Chairman of the committee which he shall appoint in accordance with the foregoing resolutions.

Another resolution was also adopted, instructing the Chairman and Secretary to call another national convention of stockmen to meet in Chicago during the week of the next Fat Stock Show.

A vote of thanks was then given to the President and Secretary, as also to the representatives of the press, after which the meeting adjourned.

VETERINARY SANITARY SERVICE IN MANITOBA.

Fortunately, Manitoba has enjoyed a singular immunity from infectious or contagious diseases of animals. With the exception of isolated cases of glanders and anthrax, and mange in certain districts, nothing in the nature of serious disease has occurred, and an epidemic has never broken out in the Province. In view, however, of the extension of communication both east and west, and of the opening of cattle ranches in the grazing districts of the Northwest Territories, a more stringent law than the one hitherto in force became necessary. Chapter 52 of the Consolidated Statutes, known as an Act respecting contagious and infectious diseases of domestic animals, was so cumbersome in its operation that its repeal was secured at the last session of the Legislative Assembly, its place being taken by part of Agriculture, Statistics and Health Act, which contains provisions based on the English Animals' Diseases Act, modified to suit the requirements of this newer country, and with special provision for dealing with glanders and farcy.

The Department has been engaged for some time past in arranging to put the new law in operation, and has succeeded in organizing a veterinary sanitary service of such a complete nature as cannot be found elsewhere on the continent. It is safe to say that no Province of the Dominion, or State of the American Union, has so thorough an organization with which to meet and stamp out an epidemic, should one unfortunately occur.

Dr. W. McEachran, V.S., who has been acting as Consulting Veterinarian to the Board of Agriculture for the

Province for some time past, has been appointed Consulting Veterinarian to the Department at a fixed salary. He will advise the Department on veterinary matters, and is empowered to exercise jurisdiction in any portion of the Province.

It is the intention of the Department to appoint one qualified veterinary surgeon in each county in the Province, thus making twenty-two in all. It has not been practicable to carry out this intention at present, owing to some districts being without a resident veterinary surgeon, and in such cases the district veterinarian for a neighboring county has been given jurisdiction over two or more.

The district veterinarians are to be paid at a fixed rate per day while actually employed by the Department, and a reasonable amount for mileage.

The following is a complete list of the veterinarians so far appointed, the list previously published having been incomplete and incorrect in several important particulars :

Counties of Manchester and Carillon, D. H. McFadden, of Emerson.

County of Morris, Alexander Porteous, of West Lynne.

Counties of Dufferin and Rock Lake, Matthew Young, of Pembina Crossing.

County of Brandon, Frederick Torrance, of Brandon.

Counties of Minnedosa, Riding Mountain, Shoal Lake, and Russell, David McNaught, of Rapid City.

Counties of Norfolk and Beautiful Plains, Samuel J. Thompson, of Carberry.

County of Selkirk, William McEachran, of Winnipeg.

Counties of Lisgar, Gimli, Plessis, and Varennes, John E. Gemmel, of Selkirk.

County of D'Iferville, John Loughman, of Winnipeg.

County of Lorette, Christopher Taylor, of Winnipeg.

Counties of Marquette and Fairford, Charles Little, of Winnipeg.

County of Westbourne, William Alexander Dunbar, of Winnipeg.

A pamphlet of instructions for the above officials is now being

prepared in the Department, and will be issued at an early date. It is also understood that slips containing brief descriptions of the symptoms of the principal infectious and contagious diseases, with hints as to the best mode of treatment in cases where it is impossible to obtain a veterinarian, will be distributed through the Province.

SOCIETY MEETINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Keystone Veterinary Medical Association was held at Camden on the evening of Dec. 1st, 1883, President Znull presiding. On roll call, Drs. Znull, Miller, Rogers, Campbell and Hoskins were present. The following amendment to the by-laws was laid upon the table for future action: "That the officers of this Association shall be elected by ballot, at each anniversary meeting, and a majority of all votes present shall be necessary for a choice."

Dr. Hoskins then brought before the Association an important question that had arisen with him. In a few remarks he traced up the calling and holding of the State Convention, its action on the admission of members, and that this had brought some of the members of this Association in close communication with certain irregular members of the profession. Through committee meetings and otherwise they had been brought in contact with these self-made men, and would need their support in securing legislation in the future. He spoke of some that he had met as good practitioners—men who assumed none of the ways of empirics; of their intelligent mode of practicing, and having at their time of entering the profession absorbed the best opportunities of becoming proficient in their calling that then existed, and that under these circumstances he favored recognizing them to the degree of consulting with them in the future. He believed that a careful discrimination in this matter would lead to no discredit, and trusted that it might not be an entering wedge for the comingling of qualified men with empirics.

Dr. Rogers believed that such digressions, carefully made, would lead to no trouble, but urged that no new men irregularly engaged in the profession be recognized, as opportunities for their proper qualification were now plentiful. His remarks were endorsed by Dr. Miller, and thoroughly acquiesced in by Dr. Hoskins. Some remarks followed also as to the low standard some schools were adopting.

Dr. T. B. Rogers, milk inspector of southern district of New Jersey, then read an essay on "Milk." His object was to enlighten the members on the methods of examining pure and impure lacteal fluids.

In his remarks he stated that the fats varied much, but the other solids not fats were almost constant, ranging about $\frac{1}{4}$ of 1 per cent. The lactometer is used in America, which is a finely adjusted hydrometer. The 100 mark is placed at 1,029, which is the mean analysis for milk, based on the examination of milk from several thousand herds; the specific gravity of water being 1,000, of milk 1,029 at the lowest pure state. A difference of temperature of milk makes a difference in specific gravity; the colder the milk, the more it is in favor of the milkman; the warmer it is, the more in favor of the State. It should be about 60 per cent. The lactometer is not the entire test, for the more milk is skimmed the higher it goes; for, as you remove the lighter parts in the shape of cream, the denser becomes that remaining, and, when watered, buoys up the lactometer. Good whole milk will have no blue line when exposed in a glass vessel; a little water gives the line; 12 per cent. of solids is necessary for good milk, with at least 3 per cent. of fats. Examinations by the Board of Inspectors showed that there was no relative difference between evening's and morning's milk; sometimes the morning's was better, and at other times the evening's exceeded in richness. Salicylic and boracic acids were used to preserve the milk, and chalk or bicarbonate of soda were used when the milk was of an acid tendency. These points were valuable to physicians, as they became of importance in certain cases of illness when such milk was being used.

The writer gave as a quick practical analysis the following

mode of procedure: Evaporate a given amount of milk on a water bath for three hours, and the loss of weight represents the amount of water it contained; that left in the pan is total solids. To ascertain the amount of fat, wash with ether till it ceases to lose weight again; this may be repeated. Ether will only take up the fatty products, then the solids, not fat, are left. To determine amount of caseine, wash the residue in pan with strong alcohol cold, then with hot water, and filter; what goes through the filter is sugar and chlorides; that on the filter is caseine; that in the pan solids not soluble. He scouted the idea that our animals, in drinking water, etc., containing the germs of scarlet fever, etc., carried them through their system and to the milk, and thus produced these diseases in the human family; but by washing the milk churns, etc., in water contaminated by drains from water-closets and elsewhere, the milk became the conveyance for these germs, and even a cultivator of them.

Much discussion followed on the milk of pleuro-pneumonia cattle, and reference was made to milk from animals affected with tuberculosis.

Specimens of ensilage matter in a sealed jar were brought before the meeting by Dr. Rogers. It proved to be fresh, sweet and green, and we could readily perceive its value for feeding purposes in the winter. This was cut green and placed in a pit, covered with boards, and then about five feet of dirt placed over it.

On motion, the meeting adjourned to the infirmary of Dr. Miller, where an interesting case was shown to the members. The doctor claimed it to be a case of laminitis, followed by muscular rheumatism. Several different diagnoses were made by other members, and a warm discussion followed.

W. HORACE HOSKINS, *Secretary*.

PHILADELPHIA, PA., Dec. 9, 1883.

At a meeting of the Pennsylvania State Veterinary Medical Association, held on the evening of the above date (Vice-President Dr. Schaufler in the chair), the presiding officer announced

that this special meeting was called for the purpose of taking action in regard to the National Convention to be held in Chicago on the 12th of December.

The meeting being open for remarks, much active discussion followed by nearly all the members present, after which, owing to the time being so short, and that the State societies had not been consulted as to the wisdom of such a course, a motion that we send a delegate or delegates to the National Convention, was defeated by a vote of 11 to 6. W. HORACE HOSKINS.

CORRESPONDENCE.

FATAL WOUND OF THE NECK BY GNAWING.

NEW ROCHELLE, OCT. 24th, 1883.

Editor Veterinary Review:

DEAR SIR:—The circumstance about to be described is the first of its kind that has come to my knowledge, being a wound that could not be sutured, the tissue being entirely destroyed or eaten away. Thinking the case of interest, I forward it for publication.

There was sent to me a bay gelding for treatment, which by his action and form I thought might be a ridgling, and so took extra precautions in securing him in my stable. On the night of the 13th he succeeded in getting loose, when he then had free access to my mare. She being secured, could not protect herself, and on my arrival at the stable in the morning, I found the gelding in the stall with my mare, both in a profuse perspiration. In examining the mare I found that the muscles of the right cervical region (both deep and superficial) had been completely eaten away, through the cervical ligament to muscles of left side, to the extent of 12 to 15 inches in length. The animal had then commenced to eat on the left side, which made an opening directly through the neck, nearly 4 inches in diameter, exposing the cervical angle and part of the cartilage of prolongment of the scapula. There was nothing left, comparatively speaking, of muscles supporting the head, but the funicular portion of the

cervical ligament. On my arrival the mare was utterly prostrated from loss of blood and shock to her system.

Excepting the injury to the neck there was not a blemish upon either animal.

After consulting with Dr. Wray, I destroyed her.

Respectfully yours,

H. B. BOYD, D.V.S.

OBITUARY.

The veterinary profession of Belgium are regretting the loss of two of its most eminent members, whose names are familiar to all veterinarians through the numerous writings which they have given to the world, and by their labors in behalf of Belgian veterinary science, as well as by their connection with veterinary education.

Louis Valentine Delwart was born in 1801, and died at the age of 82 years, last November. Having obtained his degree in that great nursery of veterinarians, Alfort, in 1824, he soon returned to his native country, where after a few years, in 1832, he united with Brogniez and Crevecœur, veterinarians, and Froidmont and Graux, doctors of medicine, in founding the Veterinary School of Brussels. The last of the founders of this excellent institution, where he was successively Professor and Director, he retired from active duties in 1867, when he was complimented with the appointment of Emeritus Director. He was held in great esteem by all his students, the large number of graduates whose diplomas bore his signature being accustomed to call him "*Father Delwart*." He has given the profession a large number of writings. Amongst the principal works are to be named his "*Pathologie Speciale*," his "*Traité de Médecine Vétérinaire Pratique*," his "*Parturition des Principales Femelles Domestiques*," and his pamphlet on "*Carcinome du Pied du Cheval*."

Theodore August Thiernesse was born in 1812. At the age of twenty-one he entered the School of Brussels, where he grad-

uated, and to which he was immediately attached as Assistant Demonstrator, Professor, and (in 1867, when Delwart retired) Director. He was a man of large intelligence, a hard worker, and always ready to do what he could to advance his profession and aid his colleagues. A member of numerous societies in Belgium, France, Germany, Russia, and Italy, he received the last acknowledgment and recognition of his eminent qualities that the veterinary profession could bestow upon him, in his appointment to the post of Permanent Honorary President at the Fourth International Veterinary Congress. He has left to the profession numerous pamphlets and other writings on various veterinary subjects, many of which are found in the *Annales de Bruxelles*.

The November number of the *Clinica Veterinaria* brings us also the sad news of the death of Prof. Giovanni Battista Ercolani, Director of the Veterinary School of Turin, which took place on the 16th of November at Bologne. Sixty-four years of age, though of a delicate constitution and suffering with a disease which must have rendered his life a burden and which lasted for a long time, Ercolani has done much for the veterinary profession in Italy, and has left not less than one hundred and thirty-six pamphlets and books relating to veterinary as well as to human medicine, adding in this way to the great and wealthy collection of researches in comparative medicine.

VETERINARY HONORS.

The decoration of the Merite Agricole—instituted a few months ago—has been received by Mr. P. Genée, veterinary surgeon; Mr. Teisserenc de Bort, Senator, late Secretary of Agriculture and President of the Commission of Epizooties; Mr. Tisserand, Director of Agriculture; Mr. Chazely, Professor of Zootechnie; Mr. Megnin, Military Veterinary Surgeon.

NEWS AND SUNDRIES.

HOG CHOLERA.—Hog cholera continues to rage along the Sangamon River in the vicinity of Dewey, Illinois. One farmer has lost 117 out of 130 head.—*Journal of Agriculture*.

CATTLE PLAGUE.—The cattle plague shows no abatement in the District of Odessa, Russia. Within seventeen days 1,800 head of cattle have perished.—*American Cultivator*.

PROLIFIC COW.—A cow in Hart county, Kentucky, recently gave birth to five calves at one time, three of which were well developed, alive and healthy, and two dead.—*Journal of Agriculture*.

PLEURO-PNEUMONIA.—Philadelphia papers are informed by Dr. Bridge and Thos. J. Edge that pleuro-pneumonia has been stamped out in Delaware and Chester counties at a total cost to the State of only \$3,500.—*Cul. and Country Gent*.

NEW LITMUS PAPER.—Dr. Squibb has substituted for the ordinary blue and red litmus paper a single color, viz., purple. This purple litmus paper turns red with acids, blue with alkalies. It is claimed to be much more delicate and convenient.—*W. Med. Reporter*.

SCAB IN SHEEP.—Dr. MacEachran, Dominion Government Inspector of Live Stock, has prevented the shipment to Liverpool of 2,000 sheep from Ontario on finding fourteen of them afflicted with scab. Some shippers there have lost large sums lately through this disease having infected the flocks and prevented shipment.—*Country Gentleman*.

RINDERPEST COMING WEST.—The following statement appears in English papers: "The rinderpest, or cattle plague, which is prevalent in Southeastern Russia, has appeared in Silesia. It has leaped across the European continent, following the course of the plague of 17 years ago. It is now within three days' journey of Hull and the northeastern ports. Assuming that this rinderpest is identical in subtlety and malignancy with that of 1866, which inflicted a colossal loss on the agriculturists of this country—in

Cheshire alone it was about a million sterling—it is the obvious duty of the crown authorities to instantly adopt the extremest precautions to prevent the introduction of it into the ports of Great Britain.—*American Cultivator*.

ACTINOMYCOSIS DISCOVERED IN AMERICAN CATTLE.—Dr. William T. Belfield, of Chicago, has made the important discovery that actinomycosis exists in American cattle. He was asked by the Commissioner of Health of Chicago to investigate a disease in cattle which has generally been known as “swell-head,” and has been called by veterinarians cancer, sarcoma, etc. Five animals were examined by Dr. Belfield, and a very short study of the specimens under the microscope revealed the true nature of the disease. Actinomycosis was only recognized six years ago by Bollinger, of Munich, who announced that it was a parasitic disease due to the presence of a rapidly growing fungus. It has since been discovered in the hog and in man. It generally first attacks the jaws, and probably gains access to the deeper tissues through carious or defective teeth. It spreads into the tissues of the head, causing tumefactions, suppuration, finally, if unchecked, pyæmia and death. It may gain the blood and be transferred to other parts of the body. This happens especially with man, upon whom the parasite acts most virulently. It is supposed that its source is the grain with which animals are fed. The disease is generally fatal, though prompt measures may check it. The meat of animals dying from actinomycosis is not of first quality. It is not, however, yet known that it is absolutely injurious. Thorough cooking, at any rate, destroys the parasite. Dr. Belfield’s discovery is an important one, and should become promptly known to veterinarians and sanitary officials.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

HOME.—American Agriculturist, Prairie Farmer, Practical Farmer, National Live Stock Journal, Turf, Field and Farm, Spirit of the Times, Druggists’ Circular, Country Gentlemen, Breeders’ Gazette, American Cultivator, Medical Record, Ohio Farmer, Rural New Yorker.

FOREIGN.—India Quarterly Veterinary Journal, Clinica Veterinaria,

Veterinary Journal, Veterinarian, Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zoötechnie, Revue de Hygiene, Gazette Medicale, Revue Scientifique, Revue fur Thierheilkunde und Thierzucht, Presse Veterinaire.

PAPERS.—Manitoba Daily Free Press, Polyclinic, Farmers' Review, Home Farm, Weekly Times, Journal of Agriculture, Southern Cultivator, Medical Herald, &c., &c.

PAMPHLETS.—Electro-Osteotome, by M. J. Roberts, M.D.

BOOKS.—Williams' Practice of Medicine; J. Signol, Aide Mémoire du Veterinaire; Congresso Nazionale dei docenti e Pratiche Veterinarie Italiani.

CORRESPONDENCE.—F. S. Billings, J. C. Meyer, Jr., A. J. Murray, A. B. Morse, W. Devoe, R. S. Huidekoper, J. Law, H. W. Hoskins, M. E. Knowles.

NOTICE (*Editorial*).—We are obliged to postpone the publication of many important communications on account of the crowding of this issue. Gentlemen desirous to send us material for the REVIEW are earnestly requested to do it before the 20th of each month.

AMERICAN VETERINARY REVIEW,

FEBRUARY, 1884.

ORIGINAL ARTICLES.

DU CHARBON BACTÉRIEN.

Charbon symptomatique et charbon essentiel de Chabert, par
M.M. Arloing, Cornevin et Thomas. Paris, 1883.

REVIEWED BY R. S. HUIDEKOPER, M.D., V.S.

Symptomatic Anthrax, Quarter Ill, Blackleg, etc.

Any publication in veterinary medicine is usually welcomed by the public; but it is rare that we have to review a book with so much pleasure as we have had in this accurate and complete practical solution of a disease which our ancestors knew was not anthrax, and yet could only classify with it. It must also flatter the vanity of every veterinary surgeon to see from the hands of his colleagues a biological study which is crowned by the scientific world, and is placed on a par with that of Koch or Pasteur. Two of the authors are comparatively little known, but Mr. Arloing will be recognized as the collaborator of the great Chauveau in the third edition of his *Anatomy*, and working under such a master, has had advantages which few have the time to obtain. The authors review the diseases described by the classic writers and those of the middle ages, and show that this disease existed then, under the name of anthrax, as geese, fowls and hogs were included among the animals attacked. The first accurate description of the disease is given by Boissier in 1768.

Chabert, in 1782, recognized that the anthracic diseases were different from the septic. In 1850 Davaine, and in 1855 Pollender, saw the bacillus in anthrax, and its absence in blackleg has been one of the reasons for combating their theory of its being the cause. Austrians, Italians, English and Belgians persisted in not accepting two distinct diseases under the term anthrax, and it was only in his addition in 1883 that Williams recognized it in a supplement. The distinguished Roell, of Vienna, soon followed. Absolute statistics of the frequency of blackleg are not obtainable on account of its confusion with anthrax; but it undoubtedly exists in almost all countries.*

Symptoms.—Blackleg begins suddenly, but in one of two ways—sometimes by a tumor (essential anthrax), sometimes by a general fever, with all its symptoms and the later appearance of the tumor (symptomatic anthrax). Young cattle (over six months) and more rarely lambs are the animals affected. In one case it was seen in a colt. Fat condition seems to favor the development. Treatment has practically been useless.

Lesions.—A gaseous element is always present in the tumors. This gas is almost completely composed of carbonic acid, but potash leaves a small residue. The tissue in the tumor undergoes fatty degeneration. The symptoms of colic are perhaps due to intestinal irritation, as the spleen and liver are free from lesion, although filled with bacteria. The biliary vesicle is always filled with microbes. The lungs are engorged at the base, but never hepatized. The blood is *coagulable*, as in its normal condition. The lymphatic glands are congested and almost universally affected.

Microbes.—These are found in quantity in the region of the tumor, more or less in the organs, and in the blood are to be found in quantity a few hours preceding death. Here they occur in two forms: *bacteria*, 0.005^{mm} to 0.008^{mm} long and 0.001^{mm} wide, eu-

* In vulgar literature, reports of farmers and other non-professional persons to the Department of Agriculture and secular papers, blackleg was separated from anthrax in the United States long before it was either clinically or scientifically in Europe. This was due to the fact that as both blackleg and anthrax are imported diseases, the germs have not come together, but as chance has brought one or the other to this country it has been disseminated accordingly.—R. S. H.

dowed with great mobility; *micrococci*, appearing as refrangent corpuscles 0.002^{mm} in diameter. These microbes are readily colored by aniline violet.

Inoculability.—Experience has demonstrated that blackleg is a “*morbus non recidivus*.” Previous experiments in inoculation have failed because—

1st. Animals capable of having the disease were not used in the experiments.

2d. Among the animals apt to have the disease, age diminishes their receptivity.

3d. The matter used was not always taken from virulent parts.

4th. A sufficient dose was not employed.

5th. Inoculation was made in regions little favorable to its evolution.

The rabbit, the hog, carnivora and fowls are only susceptible under peculiar circumstances. Those animals which develop the virus readily are cattle, sheep, goats and the guinea pig. Very young calves (under three to five months) seem protected from moderate doses (six drops of virus), but this immunity ceases as they become herbivorous. Similar immunity is seen in typhoid fever in very young children. Willems noted the same in his early inoculations for contagious pleuro-pneumonia. Animals born and raised in an infected country have again acquired an immunity after about their fourth year, due to “spontaneous” inoculation. Old animals from countries free from the disease are susceptible.

The *bile* is always rich in virulent bacteria, generally not nucleated.

The *aqueous humor* is but slightly so, while the *urine* has always proved innocuous.

The *amniotic fluid*, *serum* and *blood* are variably virulent.

The *muscular pulp* from a tumor is the most reliable means of producing the disease. The quantity required is variable. Inoculation will rarely succeed with a lancet. When it does there is generally a general fever in thirty to thirty-six hours, while the local lesion heals. By subcutaneous injection one drop may pro-

duce the local and general infection, but a less quantity (1-10 drop) causes no local lesion, while tumors may appear elsewhere; less still (1-15 drop) creates a general disturbance and confers immunity.

Virus injected directly into the veins in almost any quantity (under ten drops) causes a general fever only.

Into the *respiratory tract* the effect is the same, and the experiments of feeding virus with hay, oats, milk, etc., were all negative.

Mechanism of the Infection.—The infection is produced through the blood (including the respiratory apparatus) and the connective tissues, and results in an incomplete and curable disease, or in a complete disease with a fatal termination. The endothelium is evidently a barrier to the microbes, as they multiply in the blood and only produce tumors when a lesion is made for their exit. In the connective tissue the microbe finds a favorable field for pollution, and, after dissemination by the blood or lymphatics, any traumatic lesion favors the development of a secondary tumor.

Infection by the lungs must be regarded as the same as by the blood, and this is probably the most common mode of infection in the so-called spontaneous origin of the disease. When by accident, wound or otherwise the microbes, in sufficient quantity, gain the connective tissue, they develop rapidly and cause a tumor as the first symptom and we have the "essential anthrax" of Chabert; when, on the contrary, they have developed in the blood and by endothelial lesion find access into the connective tissue, we have the local trouble follow a general fever and the "symptomatic" form of the disease is present.

Experimental proof that the microbe of bacterian anthrax is the exclusive agent of the virus.—The virulent humors were innoxious after filtering in plaster-of-paris. The filter was virulent. Diluted humors after standing sixty hours were virulent only in the lower stratum, where microbes were found. After "essential anthrax" the blood is not virulent until microbes can be found in it.

The granulations or brilliant spores found in the blood

or cultures are products of the vibron and cause the disease.—Cultures of this microbe in serum, beef and veal broth were negative. If tubes containing infected blood were charged with carbonic acid, the cultures could be continued to the third generation. Finally success was obtained in a mixture of chicken broth, glycerine and sulphate of iron, in which the bacteria can be bred indefinitely.

Resistance of the microbe to causes of destruction :

Cold.—Liquid containing virulent bacteria, frozen solid for forty-eight hours, retained its infecting property.

Heat on fresh virus.—It requires a temperature of 100° C. (212° F.) for at least twenty minutes to destroy the virulence of the microbes. Boiling water poured on the virus will *not*, however, produce the same result.

On dried virus.—When mixed with water it requires a temperature of 110° C. for six hours to destroy the virus; when placed in a tube and subjected to 110° C. it requires only two hours.

Action of water or humidity.—Dropped in water the dried virus sinks to the bottom and may lose its infecting power in 120 hours or may retain it for an indefinite period (exceeding three months).

Putrefaction, anthrax and butyoric ferments.—The agents of these do not interfere with the preservation of the virus.

Chemical agents.—These experiments were all made by placing the virus in contact with the substance for forty-eight hours and five drops of virus was then injected into a guinea pig. The reader will probably find the following tables useful not only in regard to blackleg, but also for other parasitic poisons.

A. Action of Solutions or Liquid Substances on the *Fresh Virus*.

Do not Destroy the Virulence.

Alcohol at 90 per cent.
Spirits camphor.
Carbolized alcohol (saturated).
Glycerine.
Ammonia.
Acetate of ammonia.
Sulphate “
Sulphhydrate of ammonia.
Carbonate “

Do Destroy the Virulence.

Acid carbolic (watery solution), $\frac{2}{1000}$.
“ salicylic, $\frac{1}{1000}$.
“ boric, $\frac{1}{5}$.
“ nitric, $\frac{1}{20}$.
“ sulphuric, (diluted).
“ muriatic, $\frac{1}{2}$.
“ oxalic (saturated).
Salicylated alcohol.
Soda.

Benzine.	Potassa, $\frac{1}{5}$.
Chloride of soda.	Iodized water.
Quicklime.	Salicylate of soda, $\frac{1}{5}$.
Polysulph. lime, $\frac{1}{5}$.	Permanganate of potash, $\frac{1}{20}$.
Sulphate of iron, $\frac{1}{5}$.	Sulphate of copper, $\frac{1}{5}$.
“ quinine, $\frac{1}{10}$.	Nitrate of silver, $\frac{1}{1000}$.
Borate of soda, $\frac{1}{5}$.	Corrosive sublimate, $\frac{1}{10000}$.
<i>Hyposulph. of soda</i> , $\frac{1}{2}$.	Cazeneuve camphor (bichlor.)
Tannic acid, $\frac{1}{5}$.	Chloral, $\frac{3}{100}$.
Iodoform.	Acetate aluminium, $\frac{1}{200}$.
Silicate of potash, $\frac{1}{200}$.	Picric acid.
Oxygenated water.	Naphthaline, $\frac{2}{100}$.
Chloride of zinc.	Benzoic acid, $\frac{2}{100}$.
“ manganese.	Essence eucalyptus, $\frac{1}{800}$.
Turpentine.	“ thyme, $\frac{1}{800}$.
Cazeneuve camphor (monochlor.)	

B. Action of Gases or Substances in a State of Vapor on the *Fresh Virus.*

Not Destroying Virulence.

Ammonia.
Sulphurous acid.
Chloroform.
Sulphurated hydrogen.
Ozone.

Destroying Virulence.

Bromine.
Chlorine.
Sulphate of carbon.
Vapor of thyme.
“ eucalyptus.

C. Action of Liquid or Gaseous Substances on the *Dried Virus.*

Not Destroying Virulence.

Oxalic acid.
Permanganate of potash.
Soda.
Chlorine.
Sulph. carbon.
Vapor of thyme.
“ eucalyptus.

Destroying Virulence.

Carbolic acid, $\frac{2}{100}$.
Salicylic “ $\frac{1}{1000}$.
Nitrate silver, $\frac{1}{1000}$.
Sulphate of copper, $\frac{1}{5}$.
Muriatic acid, $\frac{1}{2}$.
Borac acid, $\frac{1}{5}$.
Salicylated alcohol (saturated).
Corrosive sublimate, $\frac{1}{5000}$.
Bromine.

After the use of thyme and eucalyptus the vibrios retain all their movements and normal appearance, but are innocuous.

As the tables show that it is much more difficult to destroy the dried than the fresh virus, disinfection should be carried out as soon as possible after the death of an animal from this disease.

Pregnant females infected with black quarter invariably communicate the disease to the foetus, and if they recover, the offspring have acquired immunity.

The authors fill a large space with the comparison and differentiation of the bacterian anthrax, the bacteridian anthrax (splenic fever), and the septicæmiæ, and evolve not only many interesting clinical, but very valuable biological facts.

Preventive Inoculation.

Immunity can be conferred by inoculating natural virus—

A.—In the connective tissue, if but a minimum quantity of microbes enter.

B.—In the connective tissue of the tail, where but little absorption takes place, but this method is also uncertain in its results.

C.—In the veins; 3-10 of a drop of fresh virus for a sheep, and 3, 5 to 10 drops for cattle.

To obtain the virus, inoculate a guinea-pig; take 2 parts of muscle from the black tumor and one part of water; filter first through linen and then through 2 or 3 layers of fine batiste; mix liquid thus prepared with 5 times its quantity of water. The jugular is carefully exposed by dissection and the injection made so as to avoid touching the walls of the vessel with the virus.

A detailed account of the mode of performing the operation is given, and should be consulted before attempting a series of operations.

D.—Injection in the respiratory tract can be made experimentally, but it is not of practical application.

Immunity Conferred by Attenuated Virus.

The virus can be attenuated—

1st.—*By the action of antiseptic substances*, but the effect is uncertain, and is as yet merely a laboratory fact.

2d.—*By successive cultures*. The virulence is often diminished after the fourth or fifth culture, but the amount can only be determined by experiments.

3d.—*By the action of heat on fresh virus*. A temperature of 65° C., prolonged for 15, 20, 30, 40 and 70 minutes, gives a virus of decreasing strength. Slight variations will, however, so alter the results that the attenuations cannot be depended upon.

4th.—*By action of heat on dried virus*. After diluting the dried virus (1 part) in water (2 parts), the preparation is placed in a stove and heated for seven hours.*

* The experience of the authors has shown that no appreciable effect is obtained below 65° C. 85° C. makes an attenuated virus which serves well for a second inoculation, but is still too strong to be safe with the smaller animals, or with very susceptible cattle. 100° C. produces an excellent first inoculation, and can be used safely even with guinea pigs. The first and second inoculations are made eight days apart.

The dried powder is again triturated and diluted in water 1 per cent.; of this one cubic centimeter is used for each inoculation. The authors now inoculate cattle at about two hands distance from the extremity of the tail. At the present time the cattle inoculated 17 months ago retain the immunity acquired by the inoculation.

In the last chapter, this careful and beautiful study of the laboratory is supported by the practical statistics of the inoculation of nearly a thousand cattle and sheep on farms in the south of France and in Algeria. These inoculations commenced in 1880, and continued through 1881-82. On infected farms and mountainous pastures not one of the inoculated animals died of blackleg, while the uninoculated belonging to the same proprietors or their neighbors and placed in the same surroundings, paid their regular tribute to this scourge of agriculture.

CONFERENCE IN BROOKLYN, N. Y.

PREVENTION OF CONTAGIOUS PLEURO PNEUMONIA.

Reported by W. H. PENDRY, D.V.S.

An interesting conference was held on the 9th of January, in the offices of the Health Department of Brooklyn, N. Y., for the purpose of discussing the question of the prevention of contagious pleuro-pneumonia, Health Commissioner J. H. Raymond, of Brooklyn, occupying the Chair. Among those present were: Hon. E. Brooks, of the State Board of Health; Professor J. Law, of the United States Treasury Cattle Commission; Dr. D. D. Whitney, of East Norwich, L. I.; Drs. C. C. Munsell and E. W. Martin, of the Department of Health in New York City; Dr. A. N. Bell, editor of the *Sanitarian*; Dr. G. V. De Hart, of the Health Department of Pleasantville, N. J.; Dr. A. Otter-son, late Health Commissioner of Brooklyn; Veterinary Surgeons Drs. Peter Peters, of New York; J. W. Gadsden, of Philadelphia; L. McLean, L. V. Plageman, W. H. Pendry, R. McLean and L. T. Bell, of Brooklyn; Jos. Hopkins, of Wyoming, and W. B. Miller, of Camden, N. J.

The Chairman stated that invitations had been sent to representatives of every Board of Health in the State of New York who were said to be familiar with the subject, and opened the conference by reading the annual reports of Veterinary Inspector Dr. L. McLean, in which he called attention to the continued and increasing prevalence of contagious pleuro-pneumonia among the milch cows of that city (Brooklyn), and stated that, in his opinion, there was not another city in the Union in which the milk-producing stock was so affected with contagious pleuro-pneumonia. Speaking of the two remedial measures of prevention, viz., the slaughtering process and inoculation, he strongly advocated the latter remedy, so far as the City of Brooklyn was concerned. He mentioned several cases in which he had inoculated cows in stables in which pleuro-pneumonia was known to exist; and in others, where it had broken out, with the result, that those which he had inoculated had not been affected with the disease. He said, while he thus advocated the adoption of inoculation, in order to meet the local conditions in recently invaded districts and isolated cases, its extirpation could be more radically effected by the slaughtering process carried out in its entirety.

The Chairman having called for an expression of the opinions of the gentlemen present, upon the subject:

Professor J. Law said he trusted that, by an interchanging of ideas, they would be led to some tangible result. He conceded that Dr. McLean's views were right, whenever they could do no better. He had held, for many years, that an inoculated animal is protected just as a person is protected from small pox. He gave the views of inoculation for pleuro-pneumonia, as expressed at the Congress of Veterinary Surgeons held last year in Brussels. The disease bore a great resemblance, in one respect, to glanders in horses, and to consumption in men and animals. Glanders and tuberculosis would not affect to the same extent as contagious pleuro-pneumonia and the lung disease, but that made the lung disease all the more dangerous, because it was very liable to appear in a form not readily recognized. In dealing with these matters, simple inoculation or temporary measures were not sufficient. There was a necessity for continuous restraint in every

place in which the disease had broken out. When it is intended to stamp them out completely, the affected animals should have no destination other than to the slaughter-houses. He would destroy every beast they had, rather than permit the disease to spread, and would even destroy every building in which it had appeared. The Federal Government should appropriate a sum sufficient to pay liberally for the cattle that would be destroyed, say four-fifths of their value, or even more, thus enlisting the interest and support of the owners. A movement was now on foot for an international system of veterinary sanitary arrangements, and considering the frequent communications between the Old and New Worlds, this was badly needed.

The Chairman: "What is your opinion in reference to the effect of pleuro-pneumonia upon the meat and milk?"

Professor Law: "There is no doubt that it impairs the value of the milk and meat, as it becomes literally fevered meat. But no injurious effects from their use had been discovered. He almost wished there had been, for then the matter would have been quickly looked after."

Dr. J. W. Gadsden, of Philadelphia, said he proposed to read several extracts from well known veterinary authorities, who gave, as the only effective treatment for pleuro-pneumonia, the stamping out process. They had employed these means in Pennsylvania, with good result. They had liberally compensated the owners, and he believed that it was due to that fact, that they had been able to extirpate the disease in that State. They had no trouble in discovering at once, when and where the disease had appeared, as the owners immediately notified them, and asked to have their stock examined. They had traced many cases from Baltimore, showing that the danger lies in moving the cattle from one place to another. As to the milk, he should consider it very injurious, particularly if used without boiling. He, too, would wish that people were a little more affected by the use of the meat and milk; as then, perhaps, there would be less difficulty in securing the adoption of some effective remedy for the evil.

Dr. Hopkins, of Wyoming, thought that gentlemen in the East had no idea of the vast cattle interests that were at stake in

the West. He represented owners who had millions invested. In the West stamping out was the only treatment they would favor. Inoculation was only a palliative of the disease, and if this was to be followed in the East, or even in Brooklyn, no cattle from such places would ever be allowed to come West. The affected animals, and the whole herd in which they were found, should be at once destroyed, and the owners liberally treated with, so that there would be no occasion to be constantly watching them. It would be to their own interest to report all cases themselves. He was sure the disease could be stamped out in eighteen months, at a cost of not more than three million dollars. To talk of any measures by which to rid the country of pleuro-pneumonia, other than the stamping out process, was in his opinion a farce. He had conversed with gentlemen who stood high in the veterinary profession. Professor Liantard and others had informed him personally, that they were in favor of the stamping out process.

Mr. Williams, of Queens County, said that he was a believer in inoculation. He had his own stock inoculated with good results.

The Chairman reminded Mr. Williams that he was speaking about a local instance. They wanted to consider the matter from a national point of view.

Mr. Williams was of the opinion, that what would apply locally would also apply nationally.

Dr. A. Bell was sure that the milk and meat of animals suffering with pleuro-pneumonia was not a proper and healthy food, and believed that it should be made a criminal offence for any one to sell either.

Dr. L. McLean understood that they had met here as scientists, to discuss by what scientific means they could suppress pleuro-pneumonia. He certainly did not consider they were doing so, when gentlemen present advocated stamping out by slaughtering. He could not deny that that process would stamp out the disease: what would not slaughtering stamp out? He considered that we were past that age. It was inhuman, besides being a great waste of money. It would take twenty years

to disinfect such stables as those he had mentioned, and in which the disease had existed for so many years. It was quite true that an inoculated animal could carry the germ of the disease in its hide, but Brooklyn was so situated, that it would be an easy matter to isolate it. He considered that he had given good reasons why inoculation was the proper scientific treatment for such a place as that city. It was not so very long since Prof. Law had advocated inoculation.

Prof. Law would repeat that when you could get no other remedy, inoculate by all means.

Hon. E. Brooks said two theories had been advanced, and, as has been said, "when Doctor's disagree, who was to decide?" Inoculation had proved of great service in small-pox; was it not reasonable to suppose it would be of service in pleuro-pneumonia?

Prof. Law held that one was entirely different from the other, and entered into the reasons at considerable length.

Ex-Commissioner Dr. Otterson thought that the point of diagnosis was the thing to get at. All owners of cattle ought to be so educated in the matter as to be able at once to make a diagnosis of the first case occurring among their stock, and so have the trouble handled in its first stage. He was sure there were many cases reported to be pleuro-pneumonia that were not so, and he had been placed in that position himself. He had at one time lost several head of cattle, one after the other, and it was reported far and wide that the cattle on his farm were affected with pleuro-pneumonia. He at once sent Dr. McLean to inspect the stock, who reported that they were not so affected. The cause was discovered by them and removed. Science had cleared the matter up, and cut short the trouble.

Dr. Plageman, being asked by the Chairman for his views, said he had nothing to add to what had already been said. There were others present who had had far more experience with pleuro-pneumonia than he had. In answer to the question by the Chair, as to what were the qualifications required for a veterinary surgeon, he said there were none.

The Chairman—"Can any body practice as a veterinary surgeon?"

Dr. Plageman—"I believe there is no law against it."

A gentleman present here remarked that it was not so in all the States.

Dr. Hopkins said he had to meet a delegation of the Chicago Convention of Stockmen in Washington the next day, and he trusted that the conference would pass such resolutions as could be presented at the same time, and hoped that some one would be appointed to join the delegation there.

Prof. Law then proposed, and Dr. Peters seconded, the following resolutions, which were unanimously adopted:

"That this conference petition Congress to appropriate such sum as they shall deem fit to stamp out the contagious pleuro-pneumonia disease in the United States."

"That in order to attain this end they shall provide for the appointment of a sufficient number of veterinarians as experts to inspect all herds in infected districts; also to indemnify owners for all cattle slaughtered by official order, to stamp out the contagious pleuro-pneumonia, and for the cost of disinfection."

"That the Legislatures and Governors of infected States be called upon to co-operate with the United States in keeping a census of all cattle in infected districts; in preventing the movement of cattle without license; in quarantining infected herds; in slaughtering infected animals, and in disinfecting and other needful restrictions."

"That the United States shall, so far as it has the power, forbid the movement of cattle out of any infected state which will not adopt measures required to stamp out contagious pleuro-pneumonia."

Prof. Law, Hon. E. Brooks and Commissioner Raymond were appointed to submit the resolutions to Congress and the Governors of the States.

On motion, Commissioner Raymond and Dr. L. McLean were appointed a committee to proceed to Washington, and attend a meeting to be held there the following day.

After a vote of thanks to the Chair, the meeting adjourned.

SPONTANEITY OF CONTAGIOUS DISEASES.

BY HENRY STEWART.

HACKENSACK, N. J., January, 1884.

Editor Veterinary Review :

MY DEAR SIR—Some time ago I promised to send you a short article, intended to meet some criticisms made by your correspondents upon some articles of mine in the *N. Y. Times*. I have been so occupied, and have been so closely studying this matter, and have had so many cases brought to my knowledge from widely separated localities, that I have put off writing up to the present. But recently another article of mine has attracted the attention of the Maryland Breeders' Association, who are engaged in procuring legislation in regard to contagious diseases, and has brought me into conflict with Dr. Ward, of Baltimore, (M.R.C.V.S.)

The subject is very important, you will readily perceive, for if the law only takes notice of actual cases of disease, and leaves the pestiferous places where the disease is bred, it must necessarily be as inoperative as would a law which compelled yellow fever or cholera patients to be secluded, and leave the filthy, open drains and all the foulness of a city unnoticed.

I live in a district where plenro-pneumonia is rife. It has been all around me; so has fowl cholera, even next door to me, but I feel entirely safe, as I have done when in my professional capacity I have spent weeks in the midst of a pestilence. And I am quite sure that until a law that authorizes the oversight of all the so-called "hot beds of disease," and enforces sanitary measures as a precaution, is procured, the plague will never be wholly removed. I herewith send you the article I promised.

Some remarks of mine upon the probability of the spontaneous origin of virulent contagious diseases, and generally of all that class of diseases which are believed to be due to the growth of virulent germs in the blood, have met with some rather severe criticisms in these columns. The weight of popular opinion in

regard to this subject, I may say, might have had some influence upon my belief, were it not that I see very many inconsistencies in the beliefs and statements of those who oppose my views, and also if I had not lived long enough to see many theories of this kind grow into settled convictions in spite of the fiercest opposition and contradiction. I well remember the sensation produced when that noteworthy book, entitled "Vestiges of the Natural History of Creation" appeared, and the strife among scientific (as well as religious) people when the theory of the spontaneous origin of life was announced. Then followed the germ theory; the investigations of Pasteur and others, the theories of Darwin, Huxley and other biologists, until opinion now is divided pretty evenly among scientific men as to whether life does really evolve itself from matter, and originates spontaneously, or is an actual creation by some miraculous and supreme power that is unknown and unknowable.

This question, however profound it may be, is related in the closest manner to the one under consideration. For if matter can form itself, by virtue of certain laws of attraction and growth, into germs that are endowed with a power of motion—as contraction and expansion, and as in the infusoria—then it is quite possible that higher, and indeed the very highest forms of life, including the mental faculties, may be produced by the operation of similar laws; for sense and thought are but the effects of the motion of certain nerves, acting in a somewhat similar manner to the movements by which the rotifers are enable to whirl themselves about in their little field under the lenses of the microscope. Now does this view detract in any way from the infinite wisdom of that power we call the Creator, for it is as high a form of power that is required to make a law and subject all matter to its operation, as that necessary to mold matter separately into every form of life and give it sensation and sense.

All this is pertinent to the point at issue; for if a germ can be formed *ab origine*, it can also be formed *de novo*; and multiplication can go on indefinitely, not only by natural increase by generation, but also by formation under favorable conditions. But I do not go so far as this. The point I desire to make is simply

that so far as these virulent diseases are concerned, it is certain, and unavoidable, that their germs are widely distributed, as are those of the common moulds and mildews, the rusts and smuts of vegetation and the virus of cholera-morbus, yellow fever, typhoid fevers, small-pox and other contagious diseases of man; and chicken cholera, swine cholera, pleuro-pneumonia and anthrax fevers of cattle. We cannot doubt this to be a fact unless we can show that there is a special law by which these diseases of cattle are differentiated from similar diseases of mankind and plants. For we can show by numberless instances how infectious diseases occur in mankind through favoring causes for the development of germs already in existence and without any exposure to infection, and how a large number of persons in the closest contact possible with the virus escape the infection. Indeed, the fundamental theory of vaccination or inoculation is based upon this very fact that the blood may be brought into such a condition that the germs of the special disease cannot grow in it, however much it may be exposed to, and infected by them. Again, the precautions by which physicians fortify themselves against infection would always be useless and ineffective if it were not possible by such precautions to give the blood the power of rendering the inhaled infection harmless, while on the contrary it is the person who is exhausted, enervated by care and worry, or debilitated by any cause who becomes the early victim. Thus Prof. Law, than whom we have no higher authority in this respect, says of anthrax fever, that "its *development* (!) is determined (among other causes) by a condition of the system of the animal predisposing to the reception and growth of the poison * * * by overwork, impure air and unsuitable food or water; * * * sudden chills when the poison is present, as extreme variations in the temperature * * * and a still, close atmosphere."

In conclusion I would urge the following facts, viz.: that the contagion of this class of diseases, including pleuro-pneumonia, must necessarily be widely spread abroad; that the virus is able to exist under favorable circumstances for a long time; that it may and does remain dormant in the blood of animals, waiting for a train of circumstances favoring its development; and that

if these favoring circumstances do not occur, there is no outbreak of the disease.

Consequently the professional veterinarian, and others who are laboring with him for the welfare of the agricultural interests, should by every means in their power, not only encourage and enforce a thorough sanitary system in the management of farm animals, but warn the public of the danger to be apprehended from a neglect of these sanitary measures, and look themselves to such, with other preventatives, as the means of combating these diseases in conjunction with the more heroic one of the instant destruction of diseased animals. Then and then only can we hope to stamp out the disease, and when the fire, as it were, is extinguished, prevent spontaneous combustion in the future, by avoiding the conditions under which it may be developed.

A CASE OF MENINGOCELE.

By M. E. KNOWLES, Student.

A bay gelding, 18 years old, was brought to the college for dissection, upon which the above was found.

Situated on the left of the median line; under the anterior portions of the great complexus and splenius muscles. Attached by a pedicle, to the superior face of the atlas; immediately over and surrounding a pseudo-foramen, the axis of which was slightly towards the left of the median line.

Its anterior limit was the anterior border of the atlas; posteriorly it was limited by the posterior border of the axis. Limited internally by the funicular portion of the ligamentum nuchæ, internally overlapping the greater portion of the great oblique muscle of the head.

In its growth it had displaced the great and small posterior straight muscles, and fibres of these were found covering the external and superior faces of the cyst.

Through the medium of areolar tissue it was quite intimately attached to the adjacent tissues.

Extirpated, and placed upon the table, it is found to be rather

testicular in shape ; about six inches in length and weighing about three pounds.

On incision, the contents, yellow in color, thick and creamy in consistency, partly ran out. On examination I found it to be undergoing calcarious degeneration.

Near the opening of the now closed canal of the peduncle, was found a " bunch " of calcarious deposits, as large as an egg, but of irregular shape, though its portions were not intimately united.

Surrounding the closed canal of the peduncle, four rudimentary cysts were found, containing a substance analagous to that found in the parent cyst.

The walls of the parent cyst were well defined, and consisted of at least three layers ; the internal, which simulated a serous membrane, which it undoubtedly was, for the peduncle was directly in communication with the dura mater.

The removal of this meningocele during life would have been a tedious operation, to say the least, and its situation probably rendered it an impossibility.

The evacuation of its contents might have been accomplished, but in either case death would undoubtedly have resulted from sympathetic, or possibly, direct inflammation of the meninges.

EDITORIAL.

SEMI-ANNUAL MEETING OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION.

In our last issue, referring to the importance of the formation of State Veterinary Societies, and to their union in joining with the oldest national association of the Union, we stated that we understood that the next meeting of the United States Veterinary Medical Association was to be held in Cincinnati. We were brought to that conclusion by the fact that a letter had been sent to the President of the Association urging this movement—a letter which had been signed by almost all the members of the *Comitia Minora*, in whose hands rest the choice of place of meet-

ing; and also from the fact that by authorization of the President a notice to that effect had been sent to some veterinarians of the West.

This action was so favorably received by members of the profession in the East, as well as from practitioners from Michigan, Ohio, and Illinois, that numerous promises of attendance and of applications for membership were made, and there was every prospect for a successful meeting.

We publish to-day the minutes of a meeting of the Comitia Minora, which was held lately in New York, by which it will be seen that a change was made in the selection of a place—which we very much regret—Boston having been decided by a very small majority to be the next place of meeting.

We took an active part in the first conclusion arrived at, and we cannot help considering the second as an error; and we sincerely hope that it will not have the bad effects which we tried to show at the Comitia Minora it might have.

The principal arguments raised against it were that the Association ought to be counselled in taking such an important step, involving such a radical change from previous custom; Eastern members might object to such an arrangement. Those in favor were, (1) the need of establishing better feelings in the ranks of the profession at once; (2) to take advantage of the stimulus to organization which already exists; (3) that numerous letters of encouragement and of adhesion were received; and (4) that many were looking upon the change as a new departure, by which the entire profession could but be benefited.

The vote was taken; Cincinnati will not be the rendezvous in March. Of course, it is difficult to obtain the opinions of all the gentlemen who belong to the Association, which are spread all over the country, before the day of the meeting, but we will be pleased to place the pages of the REVIEW at the disposal of all members or intended candidates who may be desirous of expressing their opinion on the matter. It may not yet be too late. If the Association at large should direct the Comitia Minora to change the place of meeting from Boston to any other city in the West, it can yet do so, as we have no doubt that the President

would feel bound to call a meeting of the Comitia Minora before the notices are sent; and we are quite certain that a new vote will come to the relief of our western friends. It remains with the members of the Association to decide whether those who intend to join its ranks, and who know but little of its doings, shall be satisfied in making their application in writing to the meeting in March, or will do it personally, in being present as invited, in some one of the western cities. The result for them will be the same, of course, as they will always be obliged to wait till the next meeting for admission, but in the first case they will not be able to judge of the Association as well as in the second.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

We publish in full the reports of the annual meeting of the above named organization. It is with great pleasure that we give them a place in our pages, and we cannot but congratulate our colleagues of that great State in having so successfully realized what we consider one of the most advantageous steps in the history of veterinary medicine in the United States. We shall always be glad to hear from the Ohio Veterinary Association, and to receive from its members any publication they might see fit to send us.

JOURNAL OF COMPARATIVE MEDICINE AND SURGERY.

The first number of the fifth volume of the *Quarterly Journal of Comparative Medicine and Surgery* appears with the announcement of a change in the editorial staff, one of the gentlemen formerly composing it retiring for the purpose of attending to more pressing engagements, and making room for our friend and colleague, Mr. F. S. Billings, V. M. We welcome the new *Journal* and journalist, and sincerely wish it all possible success. We call it the "*new*" *Journal*, and feel authorized to apply the adjective and to consider it as new in the sense of veterinary journalism, from the fact that this is the first time in its history that a graduate, educated essentially as a veterinarian, has come to occupy the editorial chair. Recognizing as we all do, the

ability of Mr. Billings, his love for the profession, his ambition for its elevation, and his well nourished desire for the establishment of a national veterinary institution, we can look with anticipated assurance upon the pleasant and profitable pages which the *Journal* will hereafter lay before its readers.

PATHOLOGICAL PHYSIOLOGY.

UPON THE CULTURE OF THE MICROBE OF GLANDERS, AND UPON THE TRANSMISSION OF THE DISEASE BY THE LIQUIDS OF CULTURE.

BY MESSRS. BOUCHARD, CAPITAN AND CHARRIER.

(Continued from Page 474.)

This series of experiments must remove any existing doubt upon the question of both the fact and the virulency of the liquid of the fifth culture of the matter from a nasal ulcer, an inoculation of this liquid having given rise in a first cat to a disease which proved fatal; the same disease transmitted to a second cat also having proved fatal; the disease of this last, inoculated to a third cat, being also followed by death in the same manner; a similar result being obtained in a guinea pig inoculated with the bloody serosity escaping from the nostrils of this third cat; and at last the glanderous nature of the disease communicated to the guinea-pig from the cats, and which had killed him, being proved in the most evident manner, by the effects of the inoculation of a donkey with the matter taken from a pulmonary abscess in the guinea-pig, and in less than ten days this donkey dying of acute glanders, with a peculiar eruption in his lungs, of the peculiar species of nodules, known formerly as *metastatic* abscess.

The report of this series of experiments is taken from a paper of no less than sixty observations, all of them showing the remarkable aptitude of the organism of the guinea-pig to serve as a medium of culture for the glanderous virus, whether it be inoculated in the natural state or in the state of purity obtained through successive cultures and carried to the eighth generation; a point at which the experiments were terminated. But it imports little

as to where the virus is obtained. Glanders produced in the guinea-pig by the inoculation of the cultures is absolutely the same in a chemical and anatomical point of view, with glanders produced in the same animal from glanderous products taken directly from the horse.

These experiments are sufficient, both as to their number and agreement with one another, to justify the conclusion that there exists in glanders a living element, isolable from the matter in which it exists, by means of its culture in an appropriate medium, where it appears in large quantities under the form of a movable baccillus, which is incontestably the instrument of the virulency of glanders, inasmuch as the drop taken from the liquid of the fifth, sixth, seventh, or eighth culture, is as capable by its introduction into a susceptible organism of giving rise to glanders as the natural virulent matter, taken directly from a glandered animal.

Your commission might be content in the presence of such evident demonstration with an expression of their acquiescence in the conclusions of Messrs. Bouchard, Capitan and Charrier. But we have thought that on such a subject, "quantity would not spoil quality," and your reporter has taken advantage of the means at his disposal for the verification, experimentally of the results obtained by those gentlemen, who willingly accepted the offer to renew their experiments under the conditions which were submitted to them.

On the 20th of August, 1883, a horse and a mare were destroyed in their presence. These animals had all the external symptoms of glanders; gland discharge, with nasal chancres; and, as revealed at the *post mortem*, the special ulcerations of the pituitary membrane and pulmonary lesions, under the form of nodosities and tumors, though more developed in one subject than in the other.

There was no doubt as to the nature of the disease; it was acute glanders.

Vases for culture, ready prepared, immediately received the products obtained from the two animals; matter from the lymphatic glands and from the pulmonary abscesses; blood from the heart; and purulent discharge found upon the surface of the chancres.

The cultures were made every twenty-four hours, in an oven heated to 38 degrees, as follows:

The bouillon used was made of beef, heated at from 115 to 120 degrees, in a bath of chlorure of calcium. All the precautions indicated for the destruction by proper heat of all the germs of the vases, were taken. The sowing was then made for the subsequent cultures, with a drop taken, with a heated tube, in a prepared culture, and put into a vase containing the bouillon prepared for another culture.

In each vase thus sown, the liquid became cloudy after twenty-four hours, and the microscope revealed the fact that the cloudiness was due to the presence of moving organisms, of a round or elongated form.

These organisms belong to the order of the ærobics, for it is impossible to obtain their growth in tubes free from air.

They were easily rendered visible at the moment of using. To color them, the violet of methyle or other reagents, such as the blue of methylene, were employed. These reagents, and principally the last, has made them plainly visible in the tissues where they existed.

In some few of the cultures, the disposition in chapelets with variable grains was observed, and also ovoid organisms.

INOCULATION OF TWO DONKEYS WITH LIQUIDS OF THE FIFTH AND SIXTH CULTURES.

Donkey No. 1, with liquid of the fifth culture.—Experiment conducted at Alfort, on the 30th of August.—Subcutaneous injection made behind the left shoulder.

Two days after, a painful swelling appears at the seat of inoculation, accompanied with general symptoms of extreme intensity; depression of the animal; extreme weakness; trembling; increase of temperature, rising above 41 degrees on the last day, and anorexia. September 4th, the animal drops and is unable to rise, and dies during the night of the same day, being the sixth after the inoculation. Evidence of the excessive activity of the inoculated virus.

The *autopsy*, made September 5th, shows in the lungs, the typical lesions of acute glanders. These organs were literally

stuffed with nodules of a yellowish white tint, the size of a hazelnut, or of small nuts, projecting and giving to the surface of the lung a bosselated aspect, made more evident by the depression under atmospheric pressure, of the healthy structures of the surrounding pulmonary tissue.

These nodules gave to the touch well-marked sensations of compactness, and had a caseous consistency.

No effusion appeared in the pleura, pericardium or peritoneum, and no lesion appeared in the laryngeal, tracheal or bronchial mucous membrane.

There were two ulcerations upon the pituitary membrane in the left nasal fossa; a smaller one upon the middle of the septum; and another and larger, also upon the septum, but higher up. The lymphatic glands of the subglossal region were enlarged, and were the seat of serous infiltration. On the surface of the spleen there were seven nodules, one of which was quite large.

All these lesions being sufficiently characteristic of the special object in view, further investigation became unnecessary, especially in view of the dangers attending the work of the post-mortem in cases of such extreme activity as the subject under notice had developed.

Donkey No. 2.—Inoculated with the liquid of the sixth culture. This animal was inoculated on the same day, in the same manner and in the same place.

The local and general symptoms were about the same as those of the first case, but the disease was of longer continuance, by five days. Death took place in the night of the 9th of September, the post-mortem being made on the 10th. The pulmonary lesions were less marked than in the first animal. There were but about twenty small, compact nodules, surrounded by a hemorrhagic zone, and nothing appeared in the spleen or in the liver. There was infiltration of the aryteno-epiglottic folds, and an irregular ulceration, not deep, about three centimeters long and two in width, in the middle of the left arytenoid cartilage. In the nasal cavities were four well-marked chancres, on the left face of the septum, one of them being quite large. The entire

mucous membrane was highly vascular. A small abscess containing a caseous pus appeared at the point of inoculation.

These lesions are also sufficient to characterize glanders. The chancres of the larynx and of the nasal cavities cannot be ignored.

These experiments of control are, consequently, entirely confirmatory in their results of those of Messrs. Bouchard, Capitan and Charrier: *Glanders is a microbial disease.*

This conclusion, which may now be said to be definitively admitted, the result, as it is, of experiments many times repeated and always with the same results, reflects a most important light upon a question of the greatest interest in the domains of pathological anatomy and physiology, by giving to the most important lesions their real signification, and bringing their true evolution within the scope of our clear comprehension.

The old pathological anatomy, and by this I mean that of yesterday, was able only to observe certain facts, whose meaning continued unknown, from want of this great conception of the microbial nature of the disease which we possess to-day. It said: glanders is characterized anatomically by disseminated lesion, under the form of nodular tumors, abscesses or tubercles, according to its nature, in the lungs, the liver, the spleen, the testicles, etc. It is characterized, moreover, by ulcerative lesions scattered upon the membrane of the respiratory tract, from the nostrils to the bronchial divisions. It also showed lesions of the glands, corresponding with those of the teguments and of the parenchymatous structures, etc.

But why this dissemination of the lesions? Why the distributing power seated upon the respiratory membrane? Before the era of microbic discovery, upon which we have now entered, answers were given only by suppositions, and it must be admitted to the honor of the old observers, that at least one of these came very near the truth. It was that of the irritating thorn (*epine irritante*). This, probably, did not mean a substantial reality; it was rather a metaphor which was adopted by those who wanted to say that the trouble was like that which would result if at the seat of the lesions, if there were points of irritation which called

for disseminated inflammatory processes, and from which the modifications of culture followed.

This theory—we may say it to-day—was a presentiment of genius, but the irritating thorn, admitted by the hypothesis, is to-day a living reality. It is the microbe, or rather the thousands of microbes, which, concentrated in a given point of the parenchyma, or of the mucous membranes, give rise by their presence and their vital activity to the irritating action of which the expression is the formation all around them, of a fluxus and a consecutive inflammatory process. With this idea, the formation of the inflammatory nuclei, characteristic of the anatomical development of glanders, places itself under the great law of the commanding fluxus, or to better express it, under the law which regulates the connections of the organic network with the bodies which are foreign to it, and penetrate into it.

(To be continued.)

PREVENTIVE INOCULATION WITH CARBUNCULAR CULTURES ATTENUATED BY THE METHOD OF RAPID HEATINGS.

BY M. CHAUVEAU.

The author uses the process of double vaccination, introduced by Mr. Pasteur. He says, this is the most convenient way to operate. "Instead of heating in a single mass all the liquid called *vaccinal*, contained in each matrass, I divided it in two equal parts, one being heated to $+ 80^{\circ}$, the other being kept as it was. This last, with its weak primitive attenuation, is in the best condition for the vaccination that Mr. Pasteur calls the second, the former, whose attenuation is completed by the heating at $+ 80^{\circ}$ being used for the first vaccine."

The experiment was made upon ten sheep. After the first inoculation, none were apparently sick and none died. The second inoculation was postponed on account of various circumstances, and was made only two months after the first. Nevertheless, it did not seem to disturb the animals any more. One, however, died afterwards of splenic apoplexy. Then the testing operation, the inoculation with very strong virus of a normal culture, was

made three weeks after the second vaccination, and renewed six days after, with very virulent blood, and repeated a third time always with anthrax blood, very rich in batonnets. The success was complete. Notwithstanding the accumulation of extremely strong virus, the nine living animals recovered perfectly. They possessed a perfect immunity.

These extremely favorable results of this experiment prove that the method of the rapid heatings can be applied with success to the practice of preventive inoculation, and deserves to be studied in this point of view.

If we wish to appreciate the practical value of a mode of preventive inoculation, we must look at it from the three-fold point of view, of facility of execution, innocuity of the operation, and the certainty of the results (the immunity) looked for.

In respect to the first consideration, it is certain that the method is of easy practice for all.

In relation to the innocuity, the facts reported, with many others not referred to, show that this method is surpassed by no other.

Upon the question of immunity, it can advantageously compare with any other process. This marked immunity, observed experimentally under various circumstances, may be referred to the great activity of the second liquid, called *vaccinal*, not heated, which greatly resembles the strong virus, and must produce a powerful impression upon the animal economy.—*Academie des Sciences*.

DETERMINATION OF THE CAUSES WHICH DIMINISH THE RECEPTIVITY OF SOME REGIONS OF THE ORGANISMS, FOR THE VIRUS OF SYMPTOMATIC ANTHRAX AND TRANSFORM A FATAL INTO A PREVENTIVE INOCULATION.

BY M. M. ARLOING, CORNEVIN AND THOMAS.

In inoculating cattle and sheep with the virus of symptomatic anthrax, the authors have observed, as Dr. Williams had done for the virus of contagious pleuro-pneumonia in cattle, that the microbes, inserted in the subcutaneous cellular tissue of the tail, did not give rise to the disorders which they produce in other regions of the body, and the superior part of the extremities. This

had been attributed to the density of the cellular tissue of that region, and the experiments of the authors tend to prove that to that cause must be added the low temperature of the extremity of the tail, comparatively to that of the rest of the body of the animal. Indeed, in heating or cooling the tails of animals in experiments, the effects of the inoculation were either increased or diminished. The conclusions arrived at were :

First—That the temperate seasons are the best for the practice of preventive inoculation.

Second—That it must not be done in summer.

Third—That if one is obliged to inoculate in the winter, the success of the operation will be increased by keeping the animals during the first days, in stables where the atmosphere is warm.—

Gazette Medicale.

ORIGIN OF VACCINE.

Mr. Wahlomont, (of Brussels,) in a paper upon the origin of vaccine, concludes that :

First.—Equines and bovines and no other animals can be considered as vaccinogenous.

That neither the horse nor the cow can create of themselves, the former the horse-pox, the latter the cow-pox; that both, to furnish a vaccinal matter, must have first received the seed of it.

Second.—The original sowing of vaccine, in its relation to the horse or the cow is nothing else but variola, which upon being introduced into the organisms of these animals, undergoes an attenuation which modifies it into that which we call vaccine.

Third.—This attenuation is less in the horse than in the cow; horse-pox therefore, is nearer to variola than cow-pox.

Fourth.—The horse is a poor medium for the culture of vaccine matter. Animal vaccination requires germs attenuated to a higher degree than those that can be found in the horse.

Fifth.—Variolic impregnation or artificial vaccination in the horse, by inoculation, or intra cutaneous injection, seems to be susceptible of development in the cow without external manipulation. Immunity must be the consequence of this impregnation.—*Gazette Medicale.*

EXTRACTS FROM FOREIGN JOURNALS.

CANCROID OF THE GLANS PENIS IN THE HORSE—AMPUTATION OF THE ORGAN BY THE ELASTIC LIGATURE.

A tumor having the external character of a large cancrioid had developed upon the head and free portion of the penis of a small gelding, 15 years old. This growth had produced a paraphymosis, complicated with œdema of the sheath. Micturition was greatly impeded in consequence of the double pressure upon the urethra by the neoplasin and the œdema of the sheath. The animal was losing flesh and was brought to the school of Toulouse for treatment. Considering that the cancrioid was part of the penis, it was decided to amputate the organ, and the elastic ligature was chosen as the best means of operation.

The animal being thrown on the left side, and the right hind leg secured as for castration, a metallic catheter, fifteen centimeters in length and one centimeter in diameter, was introduced in the urethra and kept in place by an assistant while the ligature was applied. This catheter allowed micturition to take place notwithstanding the circular pressure of the ligature, as it carried at the extremity which was in the urethra, an olivar dilatation which prevented it from falling off. It had also on its outside extremity a small plate which withheld it from slipping too far back in the urethra. Within eleven days, after some trifling complications, which soon subsided, the fore part of the penis beyond the ligature sloughed away, and in a month after a radical cure was obtained.—*Annales de Belgique*.

A DEEP PENETRATING WOUND OF THE PERINEUM.

BY M. JACOTIN.

An eleven-year-old horse had placed one of his fore feet upon the teeth of a fork. On raising the foot the extremity of the handle was brought against the abdominal wall towards the posterior part, and a little to the right of the sheath, and by the force of the contact and the pressure and through the struggles of

the animal the handle of the fork, turned upwards and backwards, penetrated the perineum, somewhat to the right, in the subcutaneous connective tissue, between the skin and the insertion of the gracilis muscle, and made its exit below the anus. It thus formed a fistulous tract with two openings and a median portion. The superior opening was oval in shape, with its antero-posterior axis quite well defined, and situated immediately below the sheath. The superior opening, situated below the anus, was narrow in its middle, and turned downwards and inward. Its edges were ragged. The middle portion was straight. The parts were swollen, inflamed, infiltrated, and emphysematous with a bloody, foaming discharge issuing from the lower opening. Locomotion was difficult and painful. Symptoms of general disturbance were mild, the appetite good, pulse slightly increased, and temperature almost normal. Treatment was by injections of phenicated solutions, continued irrigations of the parts, and subsequently dressings of tincture of aloes and Villate's solution. Recovery took place in twenty days.—*Archives Veterinaires*.

FRACTURE OF PATELLA IN THE HORSE.

BY MR. ANDRIEW.

A light grey gelding, twelve years old, received from another horse a kick in the left stifle region. At first sight the leg seemed paralyzed, the animal being unable to rest his foot upon the ground, and the movements of flexion and extension appearing to be impossible. Exactly on a level with the middle of the patella appeared a wound through which the finger could be readily introduced, and through which escaped a serous, bloody liquid mixed with synovia. Introducing the finger into the wound, a fracture of the patella could be felt, the bone being shattered into three pieces, making spherical segments of about an equal size by a division which starting from the superior border, runs down to the center of the bone and then divides in two, one reaching to the outer and the other to the inner border, constituting an important condition, by which ultimate recovery becomes reduced to little more than a possibility, inasmuch as one of the

superior fragments was kept in place by the internal, and the inferior by the median patellar ligament. The bone being thus divided was, owing to the impossibility of moving it from the tibia, kept in place by the femoro-patellar capsula, and a sufficient amount of immobility secured to permit the formation of a callus.

Still, notwithstanding this favorable condition, the prognosis was rendered doubtful by apprehension of the possibility of arthritis.

Treatment was, however, attempted. Continued irrigation was directed over the joint, and in eight days the animal began to rest his foot on the ground. Two weeks after he could be exercised slowly; in a month he was able to resume slow work, and but a slight lameness remained at the end of two months, which will probably disappear, as the absorption of the callus proceeds. —*Archives Veterinaires*.

INTERMITTENT COLICS CAUSED BY AN EPIPLOCELE, WHICH BECAME IRREDUCIBLE AFTER CASTRATION—DEATH.

BY M. BONNIGAL.

A four-year-old colt was castrated by a gelder, in the standing posture by the process of uncovered testicle. The operation seemed so far successful that a week had elapsed after the recovery when the first colics appeared. At intervals during the following five months, the attacks appeared, almost always occurring while at work, or after drinking, but never in so severe a form as to require treatment and readily subsiding. One evening, however, they became so severe that Mr. B. was called. When he saw the animal, the attack had continued about five hours, and he was in such a condition that an unfavorable prognosis was at once announced.

The animal was in *dorsal decubitus*; the abdomen *much tympanized*; the skin covered with a cold sweat; respiration slow deep and labored; the animal remaining insensible to all excitement; the pulse imperceptible, and the application of the finger to the eye failed to provoke the displacement of the membrana

nictitans. No treatment was attempted: the animal was dying.

What were the causes of death? The animal being castrated, hernia was not supposed, notwithstanding the position assumed, by the animal.

In exploring the scrotal region, I felt that the cicatrix of castration of the left side was drawn upwards and kept in that position by an adhesion coming from the abdomen; and it was thought that this was due to the presence upon the testicular cord of a small champignon, about the size of a small egg.

On the post-mortem, this adhesion proved to be due to the extremity of the great omentum which was much congested and terminated by an enlargement or true tumor, formed of its blood vessels, and which becoming fibrous had united to the cicatrix of the scrotum. The superior opening of the inguinal canal was enlarged by the straining of the omentum, which passing forward, first under funicular shape, had spread afterwards until it reached the great curvature of the stomach.

In this case the animal has been castrated by the process of clams.—*Presse Veterinaire*.

A CASE OF ACEPHALOCYST IN THE BRAIN OF A BEAR.

BY M. LESTRE.

A bear two years old presented for some time the following symptoms: increasing irregularity of locomotion, that function becoming regular ataxia, that is, a marked weakness of the hind-quarters; a heavy irregular walk; the fore legs being less active than the hinder, dragging on the ground, and moved by a circular motion of circumduction. The animal then became blind with amaurosis of first the right, then the left eye; was deaf and idiotic, losing control of the sphincters; not looking for his food and by degrees becoming entirely paralyzed. He was at length destroyed, and a post-mortem examination was made. The investigations were principally directed to the nervous system.

In opening the cranium, the brain at once protruded, as if pushed out. It was soft and fluctuating, and the substance was reduced to a thin and irregular layer, forming the wall of the

two lateral ventricles enormously distended, and filled with a serous liquid, in quantity about three-eighths of a liter, or some twenty ounces. As the fluid was removed through an opening in the left ventricle, a thick transparent membrane, easily torn, though elastic, appeared. This was evidently a hydatid, which had developed in the left hemisphere, which it had enlarged at the expense of the nervous substance, and the pressure of which had even acted upon the cranial box, which was found considerably thinned down. The corpora striata, horns of Ammon, optic layers, the corpora quadrigemina and cerebral peduncles were also much compressed and deformed; the optic nerves, and especially the right one, atrophied.

The right hemisphere was only the seat of a simple hydrops of the ventricle, which had pressed, deformed and thinned its walls. This was the consequence of the development of the hydatid of the other ventricle. As to the nature of this parasite, it is an echinococcus; the heads or portions of head of tænia could not be found in the liquid, nor at the surface of the membrane. But the thickness of this and the folds of its internal face are sufficient to recognize the variety of altered or undeveloped echinococcus called acephalocyst.—*Journal de Zootechnie*.

UPON THE USE OF CHLOROHYDRATE OF MORPHIA AND THE EXTRACT OF BELLADONNA IN THE TREATMENT OF TETANUS IN SOLIPEDS.

BY DR. SANTO STAZZI.

In the *Clinica Veterinaria* of October, 1884, the author reports a number of cases of this disease where the treatment consisted mainly of the subcutaneous injection of a solution of chlorhydrate of morphia in various doses. Thirty centigrams and upwards in distilled water, with the administration of fifteen grammes of extract of belladonna, stimulating friction, and the application of a blister of cantharides over the vertebral column from the withers to the croup completed the treatment.

Out of ten cases thus treated seven made a recovery.

1st case.—Of traumatic tetanus; recovered in 22 days.

2d Case.—A stallion, with tetanus of castration, also recovered after a much longer time. He received 80 centigrammes of morphia.

3d Case.—Had such a severe attack that he died in a few days.

4th Case.—A mule; was cured in 15 days.

5th Case.—A donkey was in convalescence towards the 12th day.

6th Case.—Another; made a complete recovery in 25 days.

7th Case.—This animal died the 7th day.

8th Case.—A stallion, seven years old, was considered out of danger the 16th day.

9th Case.—Death occurred in this animal on the sixth day.

10th Case.—This case was more persistent than the others; convalescence not showing itself before the 40th day.—*Clinica Veterinaria*.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY ASSOCIATION.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College on Tuesday evening, January 8th, 1884, at 8 o'clock, with the President, Dr. Liautard, in the Chair.

Owing to the absence of the Secretary it was moved and seconded that Dr. Foote act as Secretary *pro tem*. Carried.

Dr. Burden moved, and it was seconded, that the calling of the roll and reading of the minutes of the previous meeting be omitted, as the minute book was not at hand. Carried.

Dr. Critcherson read a paper on "Vomition in the Horse," citing several interesting cases which had come under his observation, as follows:

Mr. President and Gentlemen:

The subject which I shall present to you this evening for your consideration and discussion is "Vomition in the Horse."

"The act of forcibly expelling the contents of the stomach

through the œsophagus in response to direct disturbance of the brain, or from reflex irritation," although witnessed in the human race as an accompanying symptom of many disordered conditions, is symptomatic of none, while in the equine race it is said to occur only as a symptom of a grave lesion, some authorities going so far as to assert that "it only takes place at the time of, and as symptomatic rupture either of the stomach, diaphragm or colon; that, in cases of gastritis arising from whatsoever cause, attempts at vomition may be witnessed, but the act itself is not accomplished."

"It has been noticed to take place in cattle suffering from indigestion and parturient apoplexy."

It is said that "it may take place when the stomach is distended with food which is undergoing fermentation." In considering the anatomical structure of the stomach it seems to me that the greater the distention, either by food or gases, the more constricted will be the œsophageal orifice, and hence the less chance of the ingesta being returned. Why the act should be a sequelæ of rupture of the colon or diaphragm I cannot understand, but think it might follow partial rupture of the stomach, especially if paralysis of the œsophagus existed, providing the rupture took place at the lesser curvature of the organ, and involved the muscular fibers which act as a sphincter to the distal end of the œsophagus. But I should think that a rupture would be more apt to occur at the greater curvature of the organ and be followed by the escape of its contents into the abdominal cavity.

"Constriction of the pyloric orifice is also mentioned as a condition which might cause vomition." Also "Jabot," which is a dilated condition of some portion of the œsophagus.

Physiologically considered, it is said that the act is rendered difficult because of the nonsusceptibility to nauseants. Although the susceptibility may be slight, I have certainly seen well marked nauseant effects from the administration of chloral and of aloes.

The following interesting cases, which were witnessed not only by myself, but also by several other gentlemen, go to show that the act can be accomplished, and the recovery be rapid and complete :

CASE No 1.—Bay gelding, 7 years of age, 16 hands high, and weighing about 1,050 lbs., used for delivery purposes in the grocery business. Was admitted to the hospital October 13th, at 8.30 p. m., manifesting great pain, and unless kept constantly moving, would endeavor to lay down. Abdomen somewhat distended. When placed in a loose stall, at once lay down, although doing so cautiously, and rolled upon his back, where he lay striking and pawing the air with his anterior extremities. The posterior extremities were flexed at the hocks and drawn up to the abdomen. Occasionally he would carry his head around to the left side (his right side lay against the side of the stall), and look anxiously at his flank.

History.—On September 24th this same animal was admitted to the hospital suffering with acute laminitis and congestion of the lungs. Was treated for such and discharged on the 29th. Resumed work on the first of October, and continued without interruption till the 13th, when he was given his breakfast (which consisted of oats) at 5 o'clock a. m. Before being fed at noon he was allowed to eat several ears of green corn. Upon being driven in the afternoon it was noticed that he was not inclined to trot, and while standing his head was held low, but otherwise no pain was shown. Toward evening colicky pains were shown, upon which he was taken to the stable, the harness removed, and walking exercise given for an hour. As his condition did not improve, the owner became alarmed, and, notwithstanding the heavy shower of rain which was then falling, brought him to the hospital.

Diagnosis.—Flatulent colic. The animal's constant motion prevented anything being done to relieve his external condition. During a short interval of rest, while the animal was lying upon his sternum, a drench composed of tr. opi., $\bar{3}$ ii; aetheris sulph., $\bar{3}$ jj ss.; spts. ammonii aromat., $\bar{3}$ j; olei lini., $\bar{3}$ x, was given. At this time there was no protrusion of the right hypochondriac region denoting distention of the large intestine by flatus. When standing the back was arched, and the abdominal muscles in a condition of clonic spasms, while the respirations being thoracic were increased and very forcible. The process of fermentation

and the production of flatns at this time was, I think, confined to the anterior portion of the alimentary canal. In about an hour the violence of the attack greatly diminished, but the distention of the abdomen was more marked. Accordingly the colon was punctured and a large amount of gas allowed to escape. An enema of warm water and soap with the addition of olei terebinthinæ, $\frac{3}{4}$ i was given. The rectum at this time was empty. Friction of the entire body was then employed and followed by the application of blankets. About 11 o'clock he was noticed to lie down with considerable force, and while resting upon his sternum he would flex his head and neck and then fully extending the same, an eructation of gas would take place. Noticing that there was considerable retching accompanying these movements, I watched closely and saw that the act of vomition was actually performed. The discharge came from the mouth and nostrils, and it had the characteristic gastric odor. At this time the temperature was 105° , pulse, about 90, and almost imperceptible, respiration increased and labored, eyes protruding, nostrils widely dilated, and mucous membranes highly injected.

Oct. 14th. Temperature $101\frac{1}{2}^{\circ}$; pulse 80, small and weak; respiration 40. General condition much better, although the eyes were partially closed and the countenance indicated great weakness.

The abnormal muscles had a contracted, rigid appearance, the nostrils dilated and the respiration was thoracic. Auscultation revealed increased respiratory murmur over both lungs. Percussion gave dullness over the posterior and inferior portion of the left lung. Heart's action; weak and irregular. Abdominal irritation was shown throughout the day, to combat which anodynes and alcoholic stimulants were given. Very little nourishment, consisting of light, easily digested food, was partaken of. This treatment was continued till the 18th. At that time, the condition being normal, and the appetite fully restored, he was exercised and on the following day, (19th) was discharged, with directions to exercise, but not to put to work till the following Monday, (22d).

CASE No. 2.—Bay gelding, about six years old, weighing about 1,200 lbs, admitted at 8:30 p.m., on Oct. 30th.

History.—Stopped work on that day at 2 o'clock. At 6 o'clock manifested colicky pains, which increased until the owner became alarmed and sent him to the hospital. He had been fed on a mixture of corn and oats. Was very tympanitic, with constant eructations of gas. Was restless and when put into a stall, laid down and rolled upon his back, which seemed to give some relief.

Diagnosis.—Flatulent colic.

The colon was punctured, and drench of turpentine and oil given. An enema was also given, but it was instantly expelled, as the rectum was empty and spasmodically contracted. The respirations were short and thoracic, nostrils dilated, pulse full and hard. Was very restless and being amurotic would walk around the stall until he came in contact with the sides or was brought to a standstill in a corner. These movements were frequently interrupted by the animal lying down, rolling upon his back, and getting up again, only to continue his aimless walk. The regurgitation of gas continued. Was punctured the second time. The body became bathed in a profuse perspiration and symptoms of great nausea were present. On lying down these symptoms were aggravated, the head and neck flexed and then extended. On attempting to rise he showed symptoms of choking.

Gave one cough, which was immediately followed by the expulsion of nearly a gallon of a whitish, sour-smelling fluid, from both mouth and nostrils, consisting of corn and oats partially digested.

On examining the mass, an intestinal parasite (lumbricoid) was discovered. It measured ten inches in length. After the act had been accomplished, the animal laid down, with anterior extremities flexed at the knees, and the posterior ones fully extended. The anus was everted.

At this time the temperature was $101\frac{1}{2}^{\circ}$; pulse, 84; respiration, 36. All visible mucous membranes of a purple color. Gave *carbo animalis* and *calcis chloride* in pill form. Became somewhat easier. As a chill was setting in, a stimulant was given, and friction applied to the entire body.

Oct. 31.—Temperature, 102° ; pulse, 50. Is weak, but manifests no pain. Functions normal. Was given alcoholic stimulants throughout the day, with a small amount of soft feed, which he ate readily. Towards evening the temperature rose to 103° .

Nov. 1.—Temperature, 101° ; pulse, 45. Was sent home with directions to feed lightly, and not to work till the following Monday (Nov. 5th), which was done, and at 1 o'clock Monday afternoon the animal was brought back, with the history that he had been put to work that morning, but about noon had colicky pains. Condition when admitted: Temperature, 101° ; pulse, 42; respiration, 24. Had emaciated greatly since first seen. Showed no pain during the afternoon, but stood in one position, with frequent regurgitations of gas. About 5 o'clock the temperature rose to 102° ; pulse, 50; respiration abdominal and spasmodic, with a well-marked to-and-fro movement of the anus.

Nov. 6.—Temperature, $101\frac{1}{2}^{\circ}$; pulse, 36; respiration, still accelerated, but not as forcible. Eats and drinks well.

Nov. 7.—Was exercised for an hour with no disturbance of functions, which had become normal.

Nov. 8.—Discharged.

P. S.—Since writing the above I have inquired as to the present condition of both animals. The first animal has been performing its usual work without interruption up to the present time. The second was put to work, but in a short time suffered from an attack of pneumonia, from which he recovered, and is now performing his daily work.

In the course of the discussion which followed, several cases were reported in which vomition had occurred, and recovery ensued.

Dr. L. MacLean raised the question, "Could vomition occur by the way of the mouth?" to which the essayist answered in the affirmative.

Dr. Liautard considered that, while recoveries after vomition were among the rare exceptions, veterinarians were never justified in positively prognosing death.

Mr. Loblein, a student of the American Veterinary College, related a case of a mare whose teeth he had been called to rasp. After the operation, and upon being fed a quart of oats, the animal began retching, and soon vomited freely. The owner stated that she invariably did so after eating oats, and Mr. Loblein proved the truth of the assertion by inquiries among those who were acquainted with the animal. Hay and other food she retained, and he could discover no cause for this peculiar vomition.

Dr. Critcherson asked why vomition should, as a rule, only follow flatulent colic, not accompanying other intestinal disorders.

Dr. Robertson explained it by the expansion of the stomach and the folds of the mucous membrane at the cardiac extremity of the œsophagus, thereby dilating that orifice.

Dr. MacLean claimed that it is no easy matter to diagnose flatulence of the stomach; that there was no symptom to guide one, to which Dr. Coates responded, that in such cases one will notice enlargement along the inferior wall of the abdomen, without any bulging of the flank, but later perhaps the gas would extend to the larger intestines and dilate the flank. If the gas was in the colon, which lies along the inferior abdominal cavity, it would as well be manifested in the flank.

Dr. L. MacLean asserted that a partial rupture, a laceration of the mucous membrane of the stomach, was the usual cause of vomition, and that when the rupture was complete vomition would not occur.

Dr. Liantard said he could not understand why the mucous membrane should give way first in distension of the stomach. He should think that the muscular coat would give way first, and, consequently, complete fracture occur if any, and then the contractions of the stomach, while throwing a quantity of the contents into the thoracic cavity, would also throw considerable into the œsophagus, and out. In the cases he had held post mortems on he found the mucus membranes less extensively ruptured than the muscular coat.

After closing the discussion, the essayist received a vote of thanks, and the society went into executive session.

The next meeting will be held at the American Veterinary

College, Tuesday evening, February 12, 1884, for which Dr. Liantard has kindly volunteered to prepare a paper.

H. T. FOOTE,

Sec. *pro tem.*

OHIO VETERINARY MEDICAL ASSOCIATION.

The Ohio State Veterinary Medical Association held its first annual meeting in the parlors of the American House, at Cleveland, on the 8th inst. The meeting was called to order at two (2) P. M., by the President W. C. Fair, V.S., Cleveland, who addressed the meeting at some length, giving a history of the Association since its organization at Columbus in September last, also the object of the present meeting, etc., then called on the Secretary, J. M. Waddel, Columbus, for the financial report, which was read and adopted.

The Secretary was then instructed to call the roll, and the following gentlemen answered to their names, viz: W. C. Fair, V.S., Cleveland; J. V. Newton, V.S., Toledo; T. B. Cotton, V.S., Mount Vernon; J. M. Waddel, V.S., Columbus; J. S. Butler, V.S., Piqua; T. B. Hillock, V.S., Columbus; L. B. Chase, V.S., Berlin; W. F. Derr, V.S., Wooster; W. E. Wright, V.S., Delaware; W. A. Labror, V. S., Xenia; G. W. Bowler, M.D., V.S., Cincinnati; W. R. Howe, V.S., Dayton; F. Z. Groff, V.S., Massillon; L. D. Blanchard, V.S., Canton; W. Huntsberger, V.S., East Union; J. Jeannin, D.V.S., Canal Dover.

The minutes of the previous meeting was then read and approved.

The next in order of business was the election of officers for the ensuing year, as follows: W. C. Fair, Cleveland, President; J. V. Newton, Toledo; 1st Vice-President; T. B. Cotton, Mount Vernon, 2d Vice-President; W. A. Labror, Xenia, 3d Vice-President; J. M. Waddel, Columbus, Recording Secretary; J. S. Butler, Piqua, Corresponding Secretary; T. B. Hillock, Columbus, Treasurer. Board of Censors—W. R. Howe, Dayton; L. B. Chase, Berlin; G. F. Derr, Wooster.

The following gentlemen was then proposed for membership: J. Crotty, M.R. C.V.S., Cleveland; A. H. Tanner, V.S., Ashtabula; J. H. Miller, V.S., Seville; R. W. Whitehead, V.S., Youngstown; J. E. Taylor, V.S., Toledo; J. Youkerman, V.S., and D. P. Youkerman, V.S., Cleveland; D. Hank, Orville; C. A. Garrison, Houston; L. C. Spidell, Newark; G. O. Harlan, Tremont, and were referred to the Board of Censors. All were admitted to membership except Hank, Garrison, Spidell and Harlan, who, being non-graduates, were requested to present themselves for examination before the Board of Censors at the next meeting of the Association.

The visiting gentlemen were, L. Vandervoot, V.S., Trenton, Canada; A. Hummel, D.V.S., Cleveland; J. Martin, D.V.S., Cleveland, and others.

The Corresponding Secretary then read letters of regret from Prof. A. H. Baker, V.S., President Illinois State Veterinary Medical Association, Chicago; Thomas Wright, V.S., President Iowa State Veterinary Association, Davenport, Iowa; T. E. Daniels, Esq., of the *U. S. Veterinary Journal*, and others. Also the resignation of T. J. Martin V.S., of Harrodsburg, Kentucky, as one of the Board of Censors, he having left the State, which was accepted.

T. B. Cotton, V.S., Mount Vernon, was then called upon to read an essay on "Veterinary Dentistry." The paper was an exhaustive one and brought forth an animated discussion.

The essayist took the ground that carious supernumerary teeth were frequently the causes of ophthalmia, and in some cases resulted in the loss of vision, and related numerous cases, and presented several specimens of teeth to support his theory. But notwithstanding these evidences, he was opposed by the majority of those present, prominent among whom were Messrs. Fair, Howe, Whitehead, Newton, Youkerman, etc., who related cases to support their objections. The essayist also asserted, that injuries to the buccal membrane from sharp and

projecting molars often produced the foetid breath, which is always attributed by some to indigestion, or the retention of food between the teeth.

He also said carious teeth was occasionally the cause of glanders, which was opposed, except in an indirect way, from nasal gleet, the result of carious teeth. He also thought it might cause periodic ophthalmia. Dr. Newton thought that it might be caused by some parasite. But the majority concurred with Dr. Fair, that it was due to forced growth in young animals, and hereditary predisposition, together with exciting causes.

Dr. Cotton said diseased teeth brought on paralysis, and related a case in a pig that was affected with the above disease, and upon making an examination found it due to the teeth. He therefore extracted thirteen (13) deciduous teeth, and the animal made a speedy recovery without any medical treatment. He also related two or three cases in cattle, that died from the effects of carious teeth. W. F. Derr, V.S., Wooster, presented a supernumerary tooth three (3) inches long, which he extracted from a five year old horse.

Dr. Bowler, of Cincinnati, being desirous to leave for home, was called upon to address the meeting, which he did in a few well chosen remarks. He thought great benefits might be derived from the meetings of the different State Associations, viz: In doing away with the petty jealousies heretofore existing in the profession, and in raising the professional status of its members. Was pleased to be present at this meeting, having been unable to be present at the two former meetings, but would try and attend all of them he possibly could in the future.

He then closed with a few remarks on elephant castration (being veterinary surgeon to the Cincinnati Zoological Gardens, had made the wild animals a special study.)

He said the operation had never been performed successfully, owing to the testicles lying in the sub-lumbar region, and the animal's susceptibility to peritonitis (especially the African species). Most authors thought it could not be done successfully, owing to the above causes. But he differed with them, and concurred with Dr. Fleming, that it might be done with success, and thought Mr. P. T. Barnum would yet consent to let him operate, but would pick an Indian elephant to operate on.

The thanks of the meeting was then tendered Dr. Bowler, which he responded to, and retired.

The discussion was again resumed on Dr. Cotton's paper, and several other points of interest brought forward.

Dr. Fair, Cleveland, then introduced the subject of "Tuberculosis," and stated his opinion of the cause, etc., of the disease. Thought *in-breeding* was the most prominent cause, and cited several cases which came under his observation both in animals and human beings.

Thought the milk of tuberculous animals was the most frequent cause of lung troubles in young children, and had seen several cases where it had been clearly traced to infected milk. He also thought that the flesh of tuberculous animals, when not in an emaciated condition and properly cooked, was harmless for food. Dr. Newton endorsed the idea, but Dr. Howe opposed, on the ground that tuberculous matter was found in the muscular tissue.

Dr. Fair thought tuberculous matter was only found when the animal was emaciated, and in the latter stages of the disease. Dr. Whitehead related a very interesting case in a cow he was called upon to treat. Was called to deliver her of a partially decomposed foetus, which he did after some trouble, and the cow having died some time after, held a post-mortem, and found the uterus literally covered with tuberculous nodules, as was nearly every organ of the body; also found the muscular tissue very pale in color. The point, as to which was most infectious, the milk or flesh of tuberculous animals, was then discussed. The majority decided that the milk was, especially if the udder was affected. The meeting then adjourned an hour for supper.

EVENING SESSION.

The evening session began at 7 P. M., with President Dr. Fair in the chair. The next place of meeting was decided to be at Toledo in June next. The ques-

tion of revising the by-laws was then discussed, and a committee for that purpose was then formed, consisting of the following gentlemen: Howe, Blanchard, Whitehead, Youkerman, Hillock and Colton; who were requested to report at the next meeting.

Dr. Hillock, of Columbus, was then called upon to read a communication on a case of "diaphragmatic hernia," which came under his notice. When first called upon to see the animal, he was showing well-marked symptoms of acute indigestion, viz.—eructation of gases, tympany, pulse and respiration accelerated, and perspiring freely, which was followed soon after by sitting on the haunches. He treated it for the above troubles, and under the treatment pursued, he apparently recovered so that on the morning of the fifth (5th) day was eating, respiration, pulse and temperature normal. But at 4 P. M. the same day was taken suddenly ill again, perspiring profusely, and sitting on the haunches, which finally ended in the death of the animal the same evening. Upon holding a post-mortem, twenty feet of the small intestines were found in the chest, through a hernia in the middle portion of the diaphragm, and came to the conclusion that the hernia either existed prior to his illness altogether, from the severe exertion the animal had undergone, or shortly after the sickness began. This paper brought forth an animated discussion.

The question as to how much morphia, hypodermically, an animal could stand, was then brought up. Dr. Hillock, the essayist, said he had experimented on a case, and gave 35 grains at one injection at night, and found the animal eating hay in the morning. Others thought they got too much effect from 3 to 5 grain doses.

The virtues of opium and chloroform were then discussed as to their effects in tympanitis, and also the astringency or non-astringency of opium in diarrhoea. The majority decided it was non-astringent, but dessicant, and soother of the nervous system.

The operation of "paracentesis abdominis" in tympanitis was then warmly discussed. Dr. Newton related a case in a horse of his own, which took sick on the road (while out to see a patient) with flatulent colic, which he punctured seven times, and on both sides, with success. Dr. Waddel related a case in a mule where he punctured eight times, and on both sides, with success. Nearly all present related cases of a similar character, and all except two or three were in favor of the operation, and decided it did no harm when done early and with a proper instrument, except occasionally the formation of an abscess, which Dr. Howe thought might be prevented by clipping the hair, and making an incision through the skin with the scalpel before inserting the trocar and cannula. Dr. Crotty asked which portion of the intestines they punctured, and it was decided to be the colon.

Dr. Fair then related an interesting case of "tetanus" in a Canadian pony, which came under his observation, in which there was not only trismus but almost complete rigidity of the muscular system. The case, under appropriate treatment, was recovering nicely, when the groom took the liberty to lead it out by the halter, when the symptoms returned with greater severity, and ended in the death of the animal. The mode of death in such cases was then discussed. Dr. Fair thought the case in question died from asphyxia. Dr. Youkerman thought it might have been effusion into ventricles of the brain, and Dr. Garrison that it might have been due to an ante mortem clot of a fibrinous character, but the majority concurred with Dr. Fair that it was generally, if not always, due to paralysis of diaphragm, inter-costal and abdominal muscles.

Dr. Newton then introduced the subject of "parturient apoplexy," and related his mode of treatment and success of such. A lively discussion followed, in which nearly every one took an active part, relating cases they had treated, and their successes or non-successes. Dr. Howe related a case where he introduced medicines into the stomach through a hollow probang, after the power of deglutition was lost, and saved the patient. Drs. Crotty and Butler related cases seen prior to parturition. Dr. Derr, of Wooster, volunteered a paper on "parturient apoplexy," and Dr. Whitehead one on "tuberculosis" for next meeting. The

essayists were then tendered a vote of thanks, after which the meeting adjourned, to meet again at Toledo in June, of which due notice will be given.

J. S. BUTLER, *Cor. Secretary.*

COMITIA MINORA OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION.

A special meeting of the Comitia Minora of the United States Veterinary Medical Association was held at the American Veterinary College, Wednesday, January 23d, at 2:15 p. m.

Members present were: President W. B. E. Miller, and Drs. Liautard, L. McLean, Coates, Burden and Michener.

Absent: Drs. Robertson, Lockhart, Stickney and Hoskins.

The objects of the meeting were stated by the President. His remarks were supplemented by those of Dr. Liautard, who spoke of the advisability of holding the next meeting of the Association at some Western city, probably Cincinnati. This, the speaker said, would enable the veterinary surgeons of the West to become acquainted with the working of the Association and possibly induce some to become members of the same, quite a number having already signified a desire to join the Association.

A communication was then read by the Secretary from Dr. Hoskins, in which the writer urged that the next meeting be held in Cincinnati. Dr. McLean asked for information concerning the power of the Comitia Minora to change the place of meeting, and stated that he was of the opinion that any such action on the part of the Comitia Minora might not be favorably received by some members of the Association.

Dr. Liautard then read Art. I. of the By-Laws, showing the power of the Comitia Minora to decide the place and hour of meeting.

A general and spirited discussion followed, concerning the place to hold the March meeting. Dr. Burden thought a quorum would not be present if the meeting was held in the West. Dr. Michener spoke of the disadvantage of being kept so long from professional duties as a meeting in the West would occasion.

Dr. McLean thought it best to consider the matter of holding a meeting in some of the western cities, after the semi-annual meeting in Boston, at which time the opinion of the entire Association could be heard. Drs. Coates and Liautard thought that the annual meeting ought to be held in New York.

By invitation, Dr. Corlies, who was present throughout, urged as a reason for changing the places of meeting that there was a general impression extant that this Association appeared to be, at least, a factor of the American Veterinary College. He thought by going to some of the Western States the Association would prove itself entirely independent of the American Veterinary College.

Dr. Liautard strongly urged the propriety of calling the spring meeting in Cincinnati, and restated his reasons, *i.e.*, to bring to our midst a number of practitioners throughout the West.

The President, Dr. Miller, thought it prudent to use our best judgment concerning the action about to be taken, but seemed to prefer Pittsburgh as a place of meeting.

Drs. McLean and Michener spoke in favor of having the spring meeting in Boston, and that we there decide upon having the annual meeting at some Western point. After further discussion it was moved by Dr. Michener and seconded by Dr. McLean, that the semi-annual meeting be held in Boston. Carried. Drs. McLean, Burden and Michener voting in the affirmative, Drs. Liautard and Coates in the negative.

The Comitia Minora then adjourned.

C. B. MICHENER,
Secretary.

NEWS AND SUNDRIES.

CATTLE EXPORT IN CANADA.—The export of cattle from Montreal has increased from 2,880 head in 1876 to 50,365 in 1883, while during the same period the export of sheep has risen from 2,686 head to 102,835.

TRICHINOSIS IN ILLINOIS.—Several cases of trichinosis have appeared in a German boarding-house at Bloomington, Ill. The disease was caused by eating raw sausage made from a hog raised in the place.—*Med. Record*.

AGE IN BREEDING.—The Kerry cattle in their bleak, Northern home, with scanty fare, do not breed until six or seven years old. When brought to milder climates and better fed they will breed at three years of age.—*Am. Cultivator*.

SCARLET FEVER FROM MILK.—A Scotch dairyman was recently convicted of selling milk which had stood in the room in which a child was ill with scarlet fever. The milk absorbed the poison, and seventeen persons were infected with the disease, four of whom died.—*Am. Cultivator*.

BACILLUS OF JEQUIRITY.—The *Medical and Surgical Reporter* states that M. L. DeWecker (*Comptes Rendus*) shows that the infusion of the seed of the jequirity contains a bacillus which, if applied to the human eye, produces purulent ophthalmia. This is the first instance of the transmission of an infectious disease by a plant.

REMOVAL.—The New York Post Graduate Medical School, on account of lack of room in their old quarters, and the desire to combine—beside teaching—the usual clinical instruction, will remove to a larger building in 20th street, near 2nd avenue. In the past year sixteen thousand patients were utilized and treated, and 140 physicians matriculated.

PRECOCIOUS COW.—Jersey cows breed at an early age. Mr. Jacob Vernon, of Independence, Mo., owns a Jersey heifer that gave birth to a calf before she was 11 months old, and when the

calf was born the mother was yet sucking her dam, never having been weaned. So states the St. Louis *Midland Farmer*.

PLEURO-PNEUMONIA.—Three new cases of plenro-pneumonia were recently discovered near West Chester, Penn. Thus far the disease has been confined to three dairy herds. All infected animals are promptly appraised, condemned, killed and paid for by the State. The disease was introduced there by cows purchased at Baltimore.—*P. Farmer*.

A COSTLY MEDICINE.—The most costly pharmaceutical preparation in the market at present is without doubt the ergotinine prepared by the manufacturing chemists Gehe & Co., of Dresden, and containing the active principle of ergot of rye. It costs two hundred marks a gram, or something more than three dollars a grain. This is about twenty-one thousand dollars a pound avoirdupois, a price, in comparison with which, gold is "dirt cheap."—*Coll. & Cl. Record*.

APPLICATION OF TINCTURE OF IODINE.—Dr. Louis Fitzpatrick has found, after many trials, the local application of tincture of iodine to exert a well-marked influence in checking the growth of styas. This is by far preferable to the nitrate of silver, which makes an unsightly mark, and often fails in its object. The early use of the iodine acts as a prompt abortive. To apply it the lids should be held apart by the thumb and index finger of the left hand, while the iodine is painted over the inflamed papilla with a fine camel-hair pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in the twenty-four hours are sufficient.—*Am. Cultivator*.

CONTAGIOUS CATTLE DISEASES.—Last week a committee, recently chosen by the cattle breeders of the West, met at Washington with the Congressional Committees on Agriculture and the United States Cattle Commission, to devise some way of preventing the spread of contagious diseases of cattle, especially pleuro-pneumonia. It was finally decided to ask Congress to pass a law looking to that end, as it has been found that State

legislation cannot stamp out the disease. The legislation proposed is to make the shipment of cattle known to be diseased a penal offence; to establish a Cattle Bureau in the Department of Agriculture; to increase the power of the Commissioner of Agriculture; to provide funds for an elaborate investigation of diseased cattle, and to provide an appropriation for the purchase of diseased cattle that they may be destroyed. The appropriation to be asked for the first year will probably amount to \$500,000, though a smaller sum may be determined upon.—*Country Gentleman*.

A FAITHFUL DOG.—A Newfoundland dog kept guard over a bag of flour left by its drunken owner in Fairmount Park, Philadelphia, during the recent cold weather, until he was chilled into insensibility. Policemen tried to coax or drive him away, but to no purpose, and no one could get near the bag. After the faithful animal had succumbed to the frost he was carried to the guard house, and there carefully tended and resuscitated.

SWINE IMPORTATION.—The Dominion Council has ordered that swine imported for breeding purposes, from the Western States, shall remain in quarantine at Point Edward, twenty-one days. They are also to be accompanied by a certificate that they are for breeding purposes and that there is no disease among swine in the locality whence they are exported.—*Am. Cultivator*.

THE VALUE OF VACCINATION AGAINST ANTHRAX.—A commission consisting of Professors Maggi, G. Sormani, and E. Peroncito, and Dr. Nosotti, was appointed to investigate the prophylactic value of vaccination with the cultivated anthrax fluid by the method of Pasteur. They experimented with calves, heifers and lambs. Their conclusions are as follows (*British Medical Journal*): 1. Pasteur's method of carbuncular vaccination is prophylactic of carbuncle in the bovine race. The six vaccinated animals received no harm from repeated injection of carbuncular blood, while the four unvaccinated had high fever and great local swelling. 2. The heifers virgin to carbuncular injection, subjected to inoculation of blood and carbuncular virus, presented febrile reaction, but did not die; the immunity which

the two first heifers of control, the malady caused by the injection of carbuncular blood having ceased, acquired in presence of repeated injection in the second experiment, would seem to show that the morbid process was really carbuncular in nature. 3. Vaccination with attenuated lymph (No. 1 Pasteur), although repeated, caused no general or local reaction. This allows us to suppose that its action is so slight as to justify the attempt, already successfully made by Perroncito, to omit the first vaccination, and thus gain valuable time. 4. After using the stronger lymph (No. 2 Pasteur), its action should be verified by observing the temperature for a few days. It is reasonable to suppose that the preventive effect is limited to those animals in which a general reaction is developed. If there be no reaction, therefore, the vaccination must be repeated. 5. Cool weather is best for the vaccination; in the heat of summer, the occurrence of septicæmia is more to be feared. 6. The microscopic examination of the vaccine liquid prior to its use is necessary to prove the absence of bacteria of putrefaction, which, while they might destroy the prophylactic action of the vaccine for carbuncle, if injected, might easily give rise to disastrous consequences.—*Med. Record.*

EXCHANGES, ETC., RECEIVED.

- FOREIGN.—Repertorium der Thierheilkunde, Revue für Thierheilkunde und Thierzucht, Archiv für Wissenschaftliche und Praktische Thierheilkunde, Gazette Medicale, Revue Scientifique, Veterinarian, Veterinary Journal, Clinica Veterinaria, Press Vétérinaire, Echo Veterinaire, Archives Veterinaries, Recueil de Medicine Veterinaire, Comptes Rendus des Academies, Annales de Brussels.
- HOME.—Medical Record, New York Medical Journal. Archives of Medicine, National Live Stock Journal, Breeders' Gazette, Turf, Field and Farm. American Cultivator, American Agriculturist, Country Gentleman, Journal of Comparative Medicine and Surgery.
- JOURNALS.—Ohio Farmer, Prairie Farmer, Home Farm, Chicago Horseman, Journal of Agriculture, The Polyclinic.
- COMMUNICATIONS.—W. H. Pendry, D.V.S.; M. E. Knowles, W. Critcherson, D.V.S.; H. T. Foote, M.D., D.V.S.; J. S. Butler, V.S.; C. B. Miehener, D.V.S.

AMERICAN VETERINARY REVIEW,

MARCH, 1884.

ORIGINAL ARTICLES.

FOOT AND MOUTH DISEASE AT PORTLAND, ME.

BY GEO. H. BAILEY, D.V.S., Commissioner for Maine on Contagious Diseases.

I beg to report that on February 2d there arrived at this port by steamer Ontario, of the Dominion Line, twenty-eight head of Hereford cattle, consisting of six bulls, twenty-one heifers and one calf. The herd was inspected on board ship by U. S. Commissioner Thayer, and, being pronounced free from disease, were allowed to land. By some oversight, or misunderstanding between the United States officials here, and the agent of the Grand Trunk road, the animals—instead of being transported by cars to near the Shattuck farm—were allowed to be driven over the public highway through Portland and Deering to their destination at quarantine. On the morning of that day, Mr. James L. West, of Falmouth, drove into the city a pair of black oxen drawing a load of wood to near the steamer's landing, and as the imported cattle came up from the wharf he followed along behind them with his team as far as the termination of Washington street, a mile or more in distance.

On the 5th of February, Mr. Ben Tippen, the attendant of the imported cattle on the voyage from Europe, found they were off their feed, and having seen some cases of apthous fever in England, communicated his suspicions to the superintendent, Mr.

Shattuck, who telegraphed to Dr. Thayer to come at once to Portland, as the imported cattle had developed foot and mouth disease. Dr. Thayer arrived on the 6th, when he made a differential diagnosis, and authorized the publication in the daily papers of the following notice:

A FALSE REPORT CORRECTED.

The rumors that the foot and mouth disease has broken out among the cattle at the government quarantine station at East Deering, is incorrect. Dr. Thayer, the government veterinary inspector, yesterday made a careful inspection of the entire herd of Herefords now there, and says that there is no contagious disease among them. The talk about the "foot and mouth disease" arose from the fact that one or two of the herd were suffering from the common ailment known among farmers as "foul in the feet" which readily yields to treatment.

The herd of twenty-eight Herefords now there are very valuable. One of the cows recently gave birth to a calf, which was sold for \$3,500, and five heifer calves have since their arrival been sold, for delivery when the quarantine period is over, at \$500 each.

On February 8th, Mr. West, who had followed the Hereford cattle with his team, traded his black oxen to Mr. Lemuel Rolfe, who lives upon the Gerry farm at Deering, and they were placed among his other cattle, ten in number. Mr. Rolfe soon sold them to Mr. Charles Norton, at Allen's Corner, who immediately returned them to Mr. Rolfe, as he found they were sick, and Mr. Rolfe in turn drove them back to West's, [some three mile beyond where they now are. On the road they were met and passed by a yoke of oxen belonging to Mr. Jas. L. Pierce of Falmouth, and on these three farms, as the sequel proved, their animals, thirty-two in number, are all attacked with apthous fever, as well as the entire herd at Shattuck's, including his own cattle, making a total of sixty-two head now affected. The imported cattle are convalescent, however, and will all recover. The mild form of the disease exhibited in these cattle allowed them to "run the gauntlet" of Dr. Thayer's inspection, and the fatal mistake

was made when the cattle was allowed to be driven over the public thoroughfare to Shattuck's, thus setting at defiance all the purposes and intentions for which the quarantine was established. This, however will not be likely to re-occur, as the selectmen of Deering and Falmouth are moving promptly and efficiently in this matter, and no imported cattle will again be allowed to pass over their roads. West's oxen were exposed to the imported cattle on the 2d, and were taken sick on the 8th, and Pierce's and Rolfe's cattle were exposed to West's on the 8th, and taken sick on the 11th and 13th respectively.

On the 14th, during my absence from the city, the Selectmen of Deering requested Dr. F. W. Huntington to visit Mr. Rolfe's cattle, and he pronounced the symptoms similar to those of foot and mouth disease. Upon the 15th I confirmed the diagnosis of Dr. Huntington, and U. S. Collector Dow telegraphed the facts to Dr. Thayer, who came on the 16th and visited with me the stables of Mr. Rolfe, when I showed him a typical case, which he at once unhesitatingly pronounced the foot and mouth disease.

On Feb. 22d I was notified by Mr. Joshua L. Whitehouse, of West Falmouth, that his cattle were affected, when I immediately made an examination and found a pair of oxen and six cows all showing marked symptoms of the disease. The exposure of Mr. Whitehouse's oxen can be directly traced to West's, at a blacksmith's shop, where the black oxen were taken on the 8th, and a few days afterwards Mr. Whitehouse had his oxen shod at the same shop. They were then first affected, and in a few days the cows. On Sunday the 24th I was informed that a cow at Mr. John L. Smith's stable in Deering, was suspected, and on going to his place, found there was no doubt of the fact, and had her isolated from his other cows and put in quarantine. Until these latter outbreaks I had every confidence in its early suppression and removal from our State, but it now looks as though we were but upon the threshold of very serious results. The disease is capable of propagation in a great variety of ways, as through the medium of the atmosphere at short distances, and also by the saliva, the nasal, conjunctival, and intestinal mucus, which are highly charged with the virus, and I am convinced that the "end is not

yet." The affected cattle at the United States quarantine, and also at the several State quarantines, with the exception of a very few instances, are having a mild form of the disease, and no animals have yet been destroyed or died, and every precaution will be taken by the town and State authorities to prevent its further spread. Should any new cases occur, I will notify you of the fact and the results.

DISCOVERY OF THE GERM OF SWINE-PLAGUE.*

BY D. E. SALMON, V.M.

In a communication read before the Paris Academy of Sciences, Nov. 26, 1883, by M. Pasteur, the following paragraph occurs:—

As soon as I received his [Thuillier's] first letters from the commune of Peux, in the department of Vienne, it was certain that he had perceived in the blood and humors of the dead hogs a new microbion which it seemed should be the author of the disease. This microbion had escaped the observation of Dr. Klein of London, in the course of a long and remarkable account of autopsies and experiments published three years before in the report of the English sanitary office. Dr. Klein stated that a microbion was the cause of the affection; but he committed an error, for the microbion that he described has no connection with the cause of *rouget*. Thuillier by his observation had overcome the principal difficulty to a knowledge of this disease of the hog. Historic truth, however, obliges me to declare, that in 1882, and also in the month of March, the microbion of *rouget* was signalled at Chicago, in America, by Professor Detmers, in a paper which does great honor to its author. Thuillier could not have been acquainted with this paper, and I myself only learned of its existence very recently. The observation of the microbion of *rouget* of the hog by Thuillier dates from the 15th of March, 1882."†

* Reprint from Science.

† "*La vaccination du rouget des porces a l'aide du virus mortel atténue de cette maladie.* PASTEUR et THUILLIER. *Comptes rendus*, xcvi. p. 1164.

It is so very seldom that investigations on this side of the water receive any notice whatever abroad, and particularly in

France, that it seems a pity even to call attention to the very great injustice done to American work in the above statement, since any recognition at all is so much better than being quietly ignored. There is, however, so much of general interest in regard to the gradual development of our knowledge of the germ of this disease, so much of interest in the success and failures of those who have worked upon it, that, aside from our desire to see history correctly written, there is sufficient incentive for tracing the progress of this study, which commenced when the first real light was breaking upon the germ-theory of disease.

Dr. Klein deserves more credit for his share in the discovery of the micrococcus of swine-plague than M. Pasteur seems inclined to grant. In 1876 he published one of the first, if not the very first, reliable microscopic studies of this disease. The care and skill shown in this investigation are more apparent to-day than when the details were first published; and, although he subsequently made the unfortunate mistake of attributing the cause of the disease to a bacillus, this fact should not be allowed to weigh against his former and really valuable researches.*

In his account of the microscopic appearances of the intestine, the following sentence occurs:—

“From and even before the first signs of necrosis of the mucosa, viz., when the epithelium begins to break down and be shed from the surface, there are found masses of micrococci, which in some ulcers occupy a great portion of the *debris*.”†

A little farther on he says,—

“There is one more point which I believe deserves careful attention. In the ulceration of the tongue just mentioned, and at a time when the superficial scab has not become removed, I have seen masses of micrococci situate chiefly in the tissue of the papillae, but at some places reaching as far deep as the inflammation extends. That they are micrococci was proved by their forming lumps of uniform granules; these lumps stain deep purple-blue in haematoxylin, and are thus very conspicuous, and

*Report on the so-called enteric or typhoid-fever of the pig, by DR. KLEIN. In Reports of the medical officer of the privy council and local government board. New series, No. VIII. Reports to the Lords of the Council on scientific investigations, etc., 1876, pp. 99–101.

†Loc. cit., p. 98.

besides resist the action of caustic potash, with which all the rest of the tissue disappears. These heaps of micrococci in locality correspond to the papillae, and are on the surface of the scab, but underneath the covering epithelium, some parts of this having changed into a dry, hard, discolored mass, others containing larger or smaller vesicles filled with fluid."*

In the examination of the respiratory organs we are given even stronger evidence for connecting these organisms with the cause of the disease. In the mucous membrane of the anterior surface of the epiglottis, which was only slightly inflamed in its sub-mucous tissue, he found—

"Lymphatic vessels filled with micrococci. . . . In the infiltrated, firm, more or less disintegrating parts [of the lung] I find great masses of micrococci filling up capillaries and veins, and also contained in lymphatics around arteries.† . . . The pleura is much swollen, and contains great numbers, continuous layers, of lumps of micrococci. The free surface of the membrane is in many parts covered with them. The exudation fluid is also charged with them as has been mentioned above."‡

We have here the record of the unbiased *savant* seeking after the truth, and describing what he sees without any attempt to draw conclusions or build up theories. It was before Koch's brilliant investigations, identifying the *Bacillus anthracis* as the active principle in charbon virus, had seen the light. There was still the greatest doubt as to whether the contagia were essentially animal cells, vegetable organisms, or chemical poisons. It would have been premature to have presented the micrococci at that time as the cause of the disease, though it is evident from these observations that they existed in the tissues of the body before the death of the animal. We have consequently two questions to consider in an inquiry of this kind; viz., (1) Who is entitled to priority for discovering and demonstrating the presence of micrococci in the tissues and liquids of diseased animals? and (2) Who was first in proving the connection between the micrococci and the essential constituent of the virus?

It seems very evident that Dr. Klein discovered the micrococci as early as 1876, but it is equally evident that his investi-

* Loc. cit., p. 99.

† *Ibid.*, p. 100.

‡ *Ibid.*, p. 101.

gations were not sufficient to show that this parasite was the cause of the disease. The fact that from later observations, of an entirely different nature, he attributed the cause to another organism, surely can at this day detract nothing from the merits of the paper from which I have just quoted; and it must consequently be acknowledged as a matter of historical truth, the data of which are fully recorded, that Klein discovered the micrococci of swine-plague long before they were seen by Pasteur and Thuillier.

We can now pass to a brief consideration of the investigations which were intended to connect certain organisms found in the tissues or liquids of diseased and dead animals with the cause of the disease.

In 1878 a second and very elaborate report was made by Dr. Klein,* in which he gives experiments that are supposed to demonstrate the pathogenic nature of a specific bacillus found in certain liquids of diseased hogs, and cultivated for several generations in the aqueous humor from rabbit's eyes. Coming so soon after the publication of Koch's remarkable studies of the life-history of the anthrax bacillus, and agreeing so closely with them in all important respects, it is scarcely to be doubted that the earlier conclusions had more or less influence in shaping the later ones. While it might be interesting to the specialist to enter into details in regard to the defective methods of cultivation used, the unsatisfactory results of the microscopic examination of the tissues and fresh liquids for the bacilli, and the still more unsatisfactory results of the inoculation experiments with the cultivated organisms, our space will not permit this at present. In behalf of a most indefatigable worker, however, I would call attention to the fact that this mistake of Klein's was not so extraordinary as it may appear to many to-day, because the methods of cultivating and studying disease-germs have to a large extent been perfected since that time.

In the same year a number of persons were appointed by the

* Report on infectious pneumo-enteritis of the pig (so-called pig-typhoid), by Dr. E. Klein, F.R.S. Report of the medical officer of the local government board. London, 1877 and 1878, pp. 169-290.

U.S. Commissioner of Agriculture to investigate the disease known in this country as hog-cholera. The greater part of these served but two months; but Dr. Detmers, having reported the discovery of the disease-germ, was allowed to continue his investigations. In his first report, Dr. Detmers stated that the disease was caused by a bacillus, which he named *Bacillus suis*, because the same, so far as he was able to learn, was peculiar to and characteristic of swine-plague.* He saw micrococci, but regarded them as bacillus germs: indeed, he states that he constantly observed one of these under the microscope while it "budded, and grew to double its length, in exactly two hours."†

This report of Dr. Detmers, coming so soon after Klein's, and attributing the virulence to a bacillus of substantially the same characters as that described by Klein, while the latter's micrococci were made to do duty as bacillus germs,—a relation which had been previously ascribed to them by the medical officer in his 'preliminary note,' though it was not suggested by the English investigator himself,—did much to confirm the bacillus theory, and to convince scientific men that the parasite of another contagious fever had actually been isolated, and its connection with the disease demonstrated.

In January, 1880, M. Mégnin published the results of a microscopic examination of the blood in this disease, in which he described and figured a micrococcus.‡ This organism existed in single granules, and also in clusters and chains, and agreed so closely with one subsequently studied by me that I reproduced the drawings of it in connection with my report written the following December.§

In his second report,|| Dr. Detmers does not seem to have materially modified the views referred to, though he had been studying the disease during the whole of another year. In discussing accepted classifications in his supplemental report, he says,—

* Department of Agriculture. Special report, No. 12, 1879, p. 42.

† Loc. cit., p. 53.

‡ Recueil de médecine vétérinaire, 1880, pp. 36, 37.

§ Department of Agriculture. Special report, No. 34, pp. 80, 81, plate IX.

|| Department of Agriculture. Special report, No. 22, pp. 13-67.

"All however, seem to agree, that those schizomycetes classed by them under the name of 'bacillus' do not form clusters or colonies (rasen, zoogloea-masses, gliacoccus, orcocoglia), and do not undergo metamorphoses from globular to rod-shaped schizomycetes, two things decidedly characteristic of the microscopic parasites of the schizomycetes family as found in swine-plague; consequently the name adopted, bacillus, was not well chosen and is not suitable."*

As I have shown elsewhere,† the two points referred to would not exclude an organism from the genus bacillus. The best-known bacilli certainly develop from resting spores of an oval form, as seen under the microscope; some of these spores approach very closely to the globular, and, if they should be perfect spheres, the classification would not be affected in the least. The other point—that an organism, multiplying as a micrococcus, after a time develops into a rod-shaped body—is an idea that, although it is persistently pressed in some quarters, has never been accepted by the best authorities, and is no more true of the organism in question than of other forms of micrococci, as I have assured myself by long series of cultivations. The fact of greatest importance to the present inquiry is, that up to this time Dr. Detmers considered the organism of swine-plague to be rod-shaped in its developed form. This supplemental report, in which the first doubts are expressed in regard to the organism being a real bacillus, was dated six weeks after the appearance of Megnin's paper, and was not distributed for seven or eight months subsequent to this. It is to be remembered, also, that in none of the above investigations were any sufficient precautions taken to exclude atmospheric germs from the liquids examined, and no pure cultivations were made. It was therefore a matter of considerable doubt whether the organisms described were really in the blood as it circulated in the living animal, or whether they were introduced *post mortem*.

The third report of Dr. Detmers bears the date of Dec. 4, 1880.‡ In this it was stated that the "swine-plague schizo-

* Loc. cit., p. 60.

† Special report, No. 34, p. 68.

‡ Special report, No. 34, pp. 153-195.

phytae present themselves in different shape and form." The simplest form is that of a micrococcus. The second form is bispherical; the spherical cell has grown and become contracted, or indented in the middle, forming two united granules.

"These bispherical schizophytae are always more or less numerous, are either at rest or moving, and usually provided at one end with a flagellum or post-flagellum, which, however, is so exceedingly fine that I have never seen it except with the $\frac{1}{12}$ homogeneous immersion objective of Tolles, and an amplification of over 1,500 diameters, and then only while the schizophytae was moving."*

He then goes on to describe the formation of a chain of bispherical elements, and mentions the existence of zoogloea masses, as well. He had not yet given up the rod or bacillus form; for he states that in the blood and pleural exudation, when a day or two old, and sometimes while yet fresh, rod-shaped bacteria can be observed; and it appears probable that the same constitute another form of the swine-plague schizophytae.†

The same volume contained a report of mine in which are detailed certain experiments and observations on the schizophytes peculiar to this disease. In this report was given a description of the first successful attempts, as I believe, to demonstrate what micro-organisms, if any, existed in the blood and other liquids of living hogs sick with swine-plague. To keep the liquids to be examined free from all suspicion of contamination, vacuum tubes were prepared by drawing to a point the two ends of a small piece of glass tubing about a fifth of an inch in diameter. A drop or two of water was then aspirated into this tube, boiled to secure a vacuum, and the ends immediately sealed. The tube was now heated to redness to destroy any bacteria spores that might still be in it, and it was ready for filling with the virulent liquid. In use, a very sick hog was killed, a vein laid bare, sometimes before the animal was quite dead, the vacuum tube was passed through the flame of an alcohol lamp, the finely drawn-out end forced into the vein and broken across its walls, when it would immediately fill, and was sealed in the lamp as soon as

* Loc. cit., p. 187.

† Loc. cit., p. 188.

withdrawn.* It is plain that such tubes could be preserved indefinitely for examination without any suspicion of atmospheric contamination. The only change that could occur would be due to a continued multiplication—a kind of cultivation of the organisms which had existed in the blood of the living animal.

Three separate outbreaks of swine-plague at widely separated points were investigated, and in every one I found, by the method of study just referred to, that the virulent liquids contained micrococci, single, and in chains and clusters, but never rod forms, except in those cases where the tubes did not fill well, or where they were imperfectly sealed. And blood from the most perfect of these tubes, which contained no visible organisms but micrococci, produced unmistakable and severe cases of swine-plague in inoculated animals.† These were the first experiments in which the virulent material, preserved free from suspicion of atmospheric contamination, was shown to contain but a single species of schizophytes; and they were consequently the first which indicated any connection between the micrococci and the essential cause of this disease.

In his fourth report, Dr. Detmers states positively that some of the swine-plague organisms develop a lasting spore, and are changed into a helobacterium.‡ But there is no account of any measures adopted to decide which of the forms observed in the impure liquids examined had existed in the body of the living animal; nor was there any substantial reason given for considering the helobacterium as belonging to the same species as the micrococci, or, if they happened to be different, which, if either, was able to cause the disease.

The same volume contains my report bearing the date of Jan. 27, 1882. In this are details of successful inoculation experiments with the sixth pure cultivation of micrococci which had been obtained and cultivated with every precaution known to science at the present day.§ It was the first real evidence of the

* *Ibid.*, p. 22.

† *Ibid.*, pp. 23, 24.

‡ Department of Agriculture. Annual report, 1881 and 1882.

§ Loc. cit., pp. 267-269.

pathogenic action of these organisms. It was equally satisfactory with the experiments of MM. Pasteur and Thuillier; and the inoculations were made Jan. 17, 1881, or fourteen months before the discovery of this same organism by these gentlemen.

The communication of Dr. Detmers, referred to by M. Pasteur, appeared in the *American Naturalist* for March and April, 1882, and was a *résumé* of his studies for the Department of Agriculture. In this article he still thinks there is just cause to suppose that the organism of swine-plague has a helobacterium, or rod form, and a resting spore. There are, however, no new observations or experiments referred to, there is no additional proof that the micrococci seen by him were not the result of atmospheric contamination—nothing to show that a pure cultivation of these would produce the disease. On the other hand, the organism which he describes possesses a flagellum, and a moving stage or period, neither of which have I been able to observe with the true germ of this disease, nor with the closely allied micrococcus which causes fowl-cholera.

It is a matter of record, therefore, that the organism which constitutes the cause of swine-plague was first discovered by Klein in 1876, but that he failed to connect it in any way with the virus of the disease, and afterwards concluded that it depended upon a very different schizophyte. It is also a matter of record that I was the first to demonstrate by satisfactory methods that this micrococcus exists in the blood during the life of the animal, that it can be cultivated in flasks, and that the sixth successive cultivation, made in considerable quantities of liquid, and which contained no other form than micrococcus, still produced the disease. Neither Pasteur and Thuillier, nor any other investigators that I am aware of, have added one particle of evidence, except by way of confirmation, to that previously advanced by me. M. Pasteur is usually very particular in giving credit, but he does not seem to be keeping up with the progress of American science.

EDITORIAL.

MEETING OF THE UNITED STATES VETERINARY MEDICAL
ASSOCIATION.

In the February REVIEW we called the attention of our readers and of the members of the United States Veterinary Medical Association to the vote of the majority of the Comitia Minora in relation to the next semi-annual meeting of that Association. We mentioned the reasons which were presented to the meeting of the Comitia Minora in favor of a change for the place of meeting and the advantage of holding it in some western city, and also stated the objections which were offered in opposition to our views, and which influenced the majority in their disposition of the matter.

We are compelled to acknowledge that we were not then convinced of the wisdom of the decision of the Committee. Nor are our views changed to-day, and we once more express the hope that our readers and the members of the Association might express their opinions in the REVIEW in season to secure the appointment of another place. Our expectations were disappointed. We must now suppose that we were in error, and that what we then considered a wise suggestion must wear a very different aspect to others. Nothing has come to us; not a single word, either of approval or dissent as to the decision of the Comitia Minora, and, as will be seen by the notice we have received from the Secretary, the next meeting of the Association will be held in Boston, on the third Tuesday in March.

All that remains, not only for us, but for all members of the Association, is to lay aside all private business and be sure to be present at the meeting. We have been accused of being a useless Association, and it has been charged that we have never accomplished anything worthy of our age. If these charges are well-founded and true, it is fully time for the Association to awake to the importance of its position. If we desire to deserve the claims we make, we must produce works worthy of the profession we pretend to represent in this country.

CONSOLIDATION OF VETERINARY COLLEGES.

The American and the Columbia Veterinary Colleges have consolidated. The students of the latter have matriculated and will terminate their studies in the first named institution, and the alumni of the latter will be admitten to *ad Eduem* degrees, under rules and regulations prescribed by the faculty of the American Veterinary College.

Whatever may have been the causes which have hastened this consolidation, the veterinary profession at large, and especially that of the State of New York, will, we believe, be pleased to hear of an event so important to the profession. It is a fact complimentary to both institutions that their respective officers have by mutual agreements and concessions, succeeded in bringing about this consolidation. The profession in the State, and indeed, throughout the country, will gain by it. A more thorough educational training will be secured, better feelings will be established between the veterinarians who will become the alumni of one *alma mater*, and the State of New York will continue to be what it has always been in the past, the center of veterinary education for the country.

PATHOLOGICAL PHYSIOLOGY.

UPON THE CULTURE OF THE MICROBE OF GLANDERS, AND
UPON THE TRANSMISSION OF THE DISEASE BY THE LIQUIDS
OF CULTURE.

BY MESSRS. BOUCHARD, CAPITAN AND CHARRIER.

(Continued from page 520.)

This is not mere hypothesis; it is a demonstrated reality.

Do not the tuberculoid tumors which are found in the lungs whenever any living particles are disseminated in their substance, get uniformly by stimulating around them the fluxus and the subsequent modifications of the organic network of which these tumors are the exception? Such, for instance, as those pseudo tubercles which have been so well observed by Mr. Colin, which have their nuclei so firmly lodged in the extremities of the

bronchi. Such, again, as those which Professor Laulanie, of Toulouse, has found present in the eggs or larvæ of a nematoid strongylus, the *strongylus vasorum*; a most interesting fact in the general history of tuberculisation, and the truth of which has been confirmed by Mr. Cornil of the Society of Biology.

If I am not in error, Professor Willemin, in the beginning of his experiments upon the contagiousness of tuberculosis, observed in the rabbit a pseudo tuberculosis of a parasitic (acarian) nature; the nuclei of the tubercles being formed by the acari. It were useless to multiply facts of this description. We have the proof that certain pulmonary nodosities of tuberculous appearance have for their nuclei certain well-known living corpuscles, which are manifestly their originating cause, and from these facts the conclusion is unavoidable. The rapid development of the nodules which fill the lungs whenever the microbe in question is (by whatsoever means) introduced into the organism, and which is susceptible of indefinite cultivation, justifies the statement that it is this which constitutes the true virus of glanders.

These microbes, carried by the circulation into the pulmonary parenchyma, form by their growth the active nuclei around which the irritated and inflamed tissue discharges the products of its proliferation and of its pathological secretions, and this mass constitutes the glanderous nodosity. Is not this theory confirmed by the constant presence of the specific microbe in the network of the nodosity?

The same explanation may account for the phenomena of the ulceration of the respiratory mucous membrane, which constitutes one of the predominant characters of glanders or farcy. Let us, for instance, consider it in an acute case, where these phenomena are most distinctly marked.

The external manifestations following the inoculation of glanders are, *by choice*, more marked in the pituitary mucous membrane and the skin. Upon the pituitary membrane they consist in a pustular eruption, rapidly replaced by ulcerations, which themselves, rapidly growing in size and in depth, soon change it into a single large wound, resting on a network whose elements soon break off and change into a sort of putrid secretion.

What is the significance of this rapidity in the work of reorganization? The old pathology could not give it to us, but if we admit the accumulation, by rapid growth, of the elements of virulency in the tissue of the membrane, as a highly favorable medium of culture, we may understand how the anatomical elements constituting this membrane may be, as it were, smothered to death by the microbes gathered around and in them, and that once dead, the tissue loses its cohesion and becomes transformed into a putrid pulp. There is, again, no doubt that in such cases the diastasis which are the products of the manifestation of the life of the microbes, will add their proper effect to that of the microbes themselves.

In this last point of view, I believe that very important indications may be found in aid of the interpretation of the facts of microbial pathology, in a special study made by Professor Duclax of the parts complicated in the action of microbes in the fermentation of cheese. According to all probabilities, we may consider as diastatic phenomena, the agglutinative state of the blood and the diffuency of the spleen, in the bacteridian anthrax, and no doubt, also, the softening of the tissues of the pituitary membrane, in acute glanders. The dissolving action of a certain diastasis upon the caseine of milk in fermentation justifies the comparison.

It seems to me, gentlemen, that the consideration I have just introduced constitutes satisfactory evidence of the extent to which the idea of the microbial nature of glanders is admissible in the interpretation of the phenomena, hitherto so mysterious, which characterizes the disease. The old pathological anatomy could only note the facts—the microbial pathology explains them. The lesion of glanders, wherever found, is the expression of the irritating action of the microbes, both by themselves and through the products of their vital activity.

But why are the lesions of glanders mostly located in the respiratory apparatus, of which the skin may be considered as an essential dependance?

The ultimate query involved in this interrogatory is always present, and, when satisfied, becomes always introductory to others.

As one of these: Does the idea of the microbial nature of glanders provide for the elements of a positive answer? No, evidently; at least, not yet. But there is much in it calculated to induce further and special reflection. The experiments of Messrs. Bouchard, Capitan and Charrier show that the microbes of glanders will not grow in their special medium of culture while the vases containing them are excluded from the contact of air. Is it not, then, conclusively areobic?

We may then ask ourselves if the kind of selection which it seems to make of the organs of the respiratory apparatus, for the highest manifestations of its activity, is not the result of its physiological properties? Would not the explanation of this peculiar incident of the selection for the lesions of glanders consist in the simple fact that the respiratory organs form, for this areobic microbe, a most favorable medium for development?

This, of course, is only a supposition, but it carries with it a certain truthfulness, inasmuch as it is based on positive ideas, known to-day, as to the nature of the microbe. * * * * *

To resume: Two principal facts are shown in the communication presented.

The first is the confirmation of the constant presence of a bacillus in all the lesions of the glanders.

The second is the experimental demonstration that this bacillus, isolated from the organic structure, and cultivated outside of it, in its appropriate culture, is invariably and exclusively the element of virulency of that disease, and constitutes for it its true characteristic.—*Archives Veterinaires*.

EXTRACTS FROM FOREIGN JOURNALS.

TREATMENT OF THE PURULENT COLLECTION OF THE SINUSES WITH A SOLUTION OF TAR.

By M. MOLLEREAU.

Having observed the numerous failures in the simple and classical treatment of these diseases, the author decided to have recourse, after the operation of trephining, to the washing of the

cavities of the sinuses with a solution of tar, made by adding alkaline carbonates to the watery mixture of tar, and filtering the solution. The animal is first trephined, the sinus being carefully washed out and freed from the pus it contains, and then equal portions of solution of tar and carbolized water, 1 @ 100, is thrown into the cavity, followed by another injection of tar solution. This treatment is applied twice a day.

Several cases are reported in which a radical cure was obtained in between 15 and 30 days.—*Archives Veterinaires*.

TREATMENT OF THE APOPLECTIC PARAPLEGIA.

BY M. TYVAERT.

The author has obtained very satisfactory results from the administration of nux vomica in the treatment of congestion of the spinal marrow. The following is his mode of treatment:

1st. A large bleeding from the jugular vein, and, at the same time, the resection of a segment of the tail.

2d. Stimulating frictions over the vertebral column, with tincture of cantharides and a cathartic of aloes, with 10@15 drops of croton oil, with repeated injections.

3d. Two grammes (30 grains) of pulverized nux vomica in a pint of cold beer, every fourth hour.

After the first dose the frictions along the spine are renewed, and sulphate of soda given.—*Annales de Belgique*.

TREATMENT OF ARTICULAR WOUNDS WITH TANNIC ACID.

BY M. DARIO VIGEZZI.

This article, already recommended by Hertwig, Peuch, Cavassé and others, has been used by the author in many cases, where other topical applications had failed.

In one case, an old mare had a wound of the fetlock, with incomplete section of the extensor of the phalanges. This was first treated by continued irrigation, then with phenic dressing and balsam tincture, and again with corrosive sublimate, all of which had failed. Injection into the joint of an alcoholic solu-

tion of tannic acid, 5@50, and a dressing applied to the wound, of tincture of aloes, brought on a recovery in 15 days.

In another animal, the same dressing stopped the flow of synovia in four days, and the wound had assumed a healthy appearance.—*Clinica Veterinaria*.

VERMINOUS BRONCHITIS—TREATMENT BY TRACHEAL INJECTIONS.

BY M. ELOIRE.

Prof. Levi has published an excellent work on the administration of drugs through the respiratory apparatus, by the means of tracheal injections.

The author has taken advantage of this mode of treatment in verminous bronchitis of calves. In administering it, Mr. Eloire, having the head well extended upon the neck, makes a small incision through the skin, to facilitate the introduction of the needle of the syringe, into the trachea, using for his injection an instrument which will contain two doses, of about 10 grammes each.

The liquid is slowly forced into the trachea, in order to allow it to pass gradually into the bronchial divisions.

Each calf receives every day, for three days, one dose of the following mixture:

Ordinary sweet oil, 100 parts; spirits of turpentine, 100 parts; phenic acid and oil of Cade, of each 2 parts.

He has treated 16 calves in this way, and with perfect success in all.—*Recueil de Medecine Veterinaire*.

ACCIDENT FOLLOWING DOUBLE NEUROTOMY ABOVE THE FETLOCK.

BY M. TRASBOT.

This is not the report of a new accident, but of one which illustrates the fact that in cases where this operation is indicated, it ought, according to the author, to be considered as a means of last resort.

A very large animal had very large side bones on the right fore foot, from which he had been lame and disabled for three months. The foot, when carefully examined, showed nothing to account for the lameness; and the animal was thrown down and the operation performed below the fetlock, on the posterior branch of the nerve only. But little benefit resulting, the high operation was performed some fourteen days afterwards, and the lameness removed.

Towards the seventh day following, a sero-purulent oozing showed itself at the coronary band. This increased, and large swelling of the cannon took place. Several abscesses ulcerated, and the articular ligaments mortified and sloughed. In fact, the entire digital region was sloughing away. Still, the animal, which was then discharged, exhibited no evidences of pain, and walked without difficulty, his lameness seeming to be exclusively mechanical.—*Recueil de Medecine Veterinaire*.

BILL FOR STAMPING OUT PLEURO-PNEUMONIA, ETC.

The committee appointed at the convention in Chicago, last November, met at Washington, January 10th. After some discussion, the following bill was agreed upon and placed in the hands of the House Committee on Agriculture:

A BILL for the establishment of a bureau of animal industry for the suppression and extirpation of pleuro-pneumonia and other contagious diseases in domestic animals.

SECTION 1. The Commissioner of Agriculture shall organize in this department a bureau of animal industry, and appoint as chief a competent veterinary surgeon, whose duty it shall be to investigate and report the number, value and condition of domestic animals of the United States, their protection and use; also to inquire into and report the causes of contagious, communicable diseases among them, and the means of prevention and cure of the same, and collect such information on these subjects as shall be valuable to the agricultural and commercial interests of the country. The salary of the chief of the bureau shall be the

same as that of other chiefs of divisions in said department. The Commissioner is also authorized to appoint a clerk of said bureau, at a salary of \$1,500 per annum.

SEC. 2. The Commissioner of Agriculture is authorized to appoint three competent agents, who shall be practical stock raisers or experienced business men familiar with business pertaining to commercial transactions in live stock, and whose duty it shall be, under the instructions of the Commissioner of Agriculture, to report the best methods of treating, transporting, and caring for animals, the means to be adopted for the suppression and extinction of pleuro-pneumonia, and provide against the spread of other contagious diseases. The compensation of the agents shall be \$10 per diem, and all necessary expenses while engaged in the performance of duty under the act.

SEC. 3. In order to promote the exportation of live stock from the United States, the Commissioner of Agriculture shall make a special investigation as to the existence of contagious pleuro-pneumonia, or any contagious communicable disease, along the dividing line between the United States and foreign countries, and along the lines of transportation of all parts of the United States, to ports from which live stock are exported, and make a report of the results of the investigation to the Secretary of the Treasury, who shall establish such regulations concerning the exportation and transportation of live stock as the results of said investigation shall require.

SEC. 4. That to prevent the exportation from any port of the United States to any port of a foreign country, of live stock affected by any infectious or contagious disease, especially pleuro-pneumonia, the Secretary of the Treasury shall be authorized to adopt such measures not inconsistent with the provisions of this act as he may deem necessary.

SEC. 5. That it shall be the duty of the Commissioner of Agriculture to prepare such rules and regulations as he may deem necessary for the speedy and effectual suppression and extirpation of contagious pleuro-pneumonia, and certify such rules and regulations to the executive authority of each State and Territory, and invite said authority to co-operate in the enforcement

of the provisions of this act. Whenever the plans and methods of the Commissioner of Agriculture shall be accepted by any State in which pleuro-pneumonia or other infectious or contagious diseases are declared to exist, and whenever the Governor of the State, or the other properly constituted authorities, signify a readiness to co-operate for the extinction of any contagious or infectious disease, the Commissioner of Agriculture is authorized to expend so much of the appropriation as is necessary in the investigation of the facts as to the disease, in paying for animals deemed necessary to slaughter, and in such disinfection and other means necessary to stamp out the disease; and whenever a State, in any section of which contagious or infectious disease exists, which the Commissioner of Agriculture has declared dangerous to the animal industries of the nation, fails to make provision for its extinction, or co-operate with the plans of the Commissioner of Agriculture for the extinction of the disease, the President of the United States, on presentation of the facts by the Commissioner of Agriculture, shall be authorized to declare said State, or such part of said State as is dangerous to the animal interest of the country, in quarantine, and prohibit the exportation of cattle out of said State or district.

SEC. 6. Provides for the effectual stamping out of the disease in the District of Columbia.

SEC. 7. That no railroad company within the United States whose road forms any part of a line of road from one State or Territory to another, or the owners or masters of any steam, sailing or other vessel shall receive for transportation or transport from one State or Territory to another any live cattle affected by any contagious or infectious disease, and especially the disease known as contagious pleuro-pneumonia, or lung plague; nor shall any person, company, or corporation deliver, for such transportation to any railroad company or master or owner of any vessel, any live cattle knowing them to be affected by any contagious or infectious disease; or any person, company, or corporation drive on foot or transport by private conveyance from one State or Territory to another any live cattle, knowing them to be affected by any contagious or infectious disease, especially contagious pleuro-pneumonia or lung plague.

SEC. 8. It shall be the duty of the Commissioner of Agriculture to notify the proper officials or agents of any railroad, steamboat, or other transportation company doing business in any infected locality of the existence of said contagion, and the person or persons operating such railroad, or the master or owner of any vessel, or owner, custodian, or person having control of such cattle or live-stock within the affected districts who shall knowingly violate the provisions of Sec. 7 of this act shall be guilty of a misdemeanor, and on conviction punished by a fine of not less than \$1,000 nor more than \$5,000, or imprisonment for not more than one year, or both fine and imprisonment, and if any such railroad, steamboat, or other transportation company shall after having received such notice, violate the provisions of the act, such action shall be *prima facie* evidence of wilful disregard of the provision of the act.

SEC. 9. It shall be the duty of the several United States District Attorneys to prosecute all violations of the act brought to their notice by any person making complaints; and the same shall be heard by any District Court of the United States holden within the district in which the violation of the act is committed or the person or corporation resides or carries on or has a place of business.

SEC. 10. That the sum of \$500,000 or so much thereof as is necessary, be appropriated to carry into effect the provision of the act.

SEC. 11. This act shall take effect and be in force from and after its passage.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday evening, Feb. 12th, at 8 o'clock, the President Dr. Liautard, in the chair.

On motion, Dr. W. H. Pendry was elected Secretary *pro tem*.

The following gentlemen answered to the roll call: Drs. Jas. L. Robertson, Chas. Burden, W. J. Coates, H. T. Foote, C. B. Michener, L. M. Crane, L. McLean, H. B. Boyd, D. J. Dixon, W. H. Pendry, S. K. Johnson, Richard Kay, W. D. Critcherson and E. Burget.

The minutes of the last meeting were read, and on motion were adopted.

Dr. Burden called for the reading of the minutes of the December meeting.

The President stated they were not present, and consequently could not be read, and on looking over the Minute Book, expressed his surprise that the minutes of several meetings had not been entered.

Dr. L. McLean considered it looked anything but right to see minutes not recorded when they related to unfinished business, and he wished it to be put on record that there were unfinished transactions, that they had not been brought forward, and that he considered the whole fault rested with the executive officers of the Society.

Vice President Dr. W. J. Coates was called to the Chair.

Dr. Liautard then read a paper entitled "Stumbling Blocks to the Progress of Veterinary Science."

The paper was received with marked attention, and was heartily applauded by the large gathering of students and others present, besides members of the Society.

The Chair stated the paper was open for criticism, but from the silence that followed, a too sensitive cord had been touched; truth's bright rays proved too strong, even for veterinarians to bask in, and all in silence "passed."

Dr. Dixon considered the paper so full of "golden rules," that nothing could be added, and moved a vote of thanks to the essayist, which was carried.

Dr. Johnson nominated for members, F. Walton, D.V.S.; E. Charum, D.V.S.; T. Finegan, D.V.S. Referred to Committee on Credentials.

The meeting then went into Committee of the Whole, and on rising, reported the election of E. Waters, V.S., Brooklyn, to membership.

Dr. W. H. Pendry was elected Secretary *pro tem*.

The following resolutions were adopted :

That the Association's prize, (a gold medal), was open for competition to the graduating students of all veterinary institutions in the State of New York.

That no graduate would be allowed to compete for the prize, unless he comes up to a required standard in the examination.

That the examination would be essentially a practical one.

That the next meeting of the Society would be held at the Cooper Institute, New York City, on March 11th, at 8 p. m.

W. H. PENDRY, D.V.S., *Secretary pro tem*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of the Ontario Veterinary Association was held in the Ontario Veterinary College, Toronto, on Friday, Dec. 21st, 1883.

There was a good attendance of members from all parts of the Province of Ontario, and some from the United States.

Mr. Elliott, the President, opened the meeting with an interesting address. He said: Our numbers were not so large as he could wish, considering the number of qualified practitioners of veterinary medicine in the Province of Ontario; still he thought it as large as other Associations of a similar character. During the past year several veterinary associations had been formed in the United States, and it was noticeable, the prominent part taken in them by graduates of the Ontario Veterinary College. Our profession is fully keeping pace with the other professions in the Province. He also noticed the marked interest taken in importing and improving our stock in Ontario, in which respect we were not surpassed by any part of America. He also remarked that there had been no demand on the funds of the Association to defend any of its members in lawsuits in connection with their practice, a fact that spoke well as to the satisfaction they were giving the public.

The Secretary's, Treasurer's, and Auditor's reports were then

received and adopted, showing the finances to be in a healthy state.

The Register reported a steady increase in the number of practitioners registering. Still, there were many qualified practitioners in the Province who were neglecting to register.

The Secretary produced a number of communications from graduates on subjects of interest, also from Acton Borrows, Esq., Dep. Minister of Agriculture, Manitoba, enclosing crop-statistics, health and veterinary reports, etc., also a copy of an agricultural act just passed, which places the veterinary profession in a good position in that Province.

A discussion then took place as to changing the date of our annual meeting. It was decided not to change it. But it was resolved "that we have a summer meeting next August."

The election of officers then took place with the following result: Mr. O'Neil, of London, President; Mr. Coleman, of Ottawa, 1st Vice President; Mr. Lloyd, of Newmarket, 2d Vice President; Mr. Cowan, of Galt, Treasurer; Mr. Sweetapple, of Ottawa, Secretary. Messrs. Elliott, J. S. Cæsar, Carter, Badgerow, Hamilton, Shaw, Quinn, and Beatty, Directors; Prof. Smith, Honorary Director; Messrs. Steele and Austin, Auditors.

Dr. Duncan was then called on, and read a paper on Actinomyces, which he had discovered in the tongue of an ox. This is, so far as reported, the first case in America in which the vegetable parasite has been found in the tongue. In Germany and England the disease of which this is the cause has recently been investigated and described. The actinomyces flourish both in man and animals, when once having obtained access to the organism. The parasite is a sort of mould, having close affinities with *Penicillium glaucusa*, the ordinary green mould of old leather. The actinomyces, however, show a distinct radiating structure under the microscope. When this mould enters the body under favorable circumstances, it propagates itself rapidly. If in man, the tendency is to suppurative processes, but in the lower animals, the result of the infection is seen in tumors of the jaw bones, (the osteo sarcoma of the older writers), pharynx, skin, udder, lungs, and tongue. This last affection is usually called tubercular in its

nature. In order to ascertain whether this condition of the tongue in extensive, the essayist had written to many veterinary surgeons in different parts of the continent. In only one case has his correspondent noticed any thing like it. Actinomycosis of the jaws, however, is common. Dr. Belfield, of Chicago, and Dr. Osler, of Montreal, have recently described cases of this. Several cases of this disease have been noticed in man in Germany; some recovered, but the greater proportion died. It probably exists in man in this country, but has not yet been noticed. It is probably transmissible from animals to man. Dr. Duncan exhibited drawings and the morbid specimen. The specimen was sent for examination by Mr. Aikenhead, V. S., of Goderich.

On motion, the thanks of the meeting were presented to Dr. Duncan for his very interesting and instructive paper.

Mr. Cowan read a paper on Castration, and the different methods of performing that operation. This was followed by a lively discussion, in which a number took part, the operation of ligaturing the artery, the clams, and the ecraseur each having strenuous advocates. That by the ecraseur appears to be steadily gaining in favor.

Mr. Sweetapple brought up the subject of glanders, its increase in the country, and the need for some stringent legislative measures being adopted relating thereto, and a motion was passed that the Secretary be instructed to memorialize the Minister of Agriculture as to the advisability of passing a stringent Act in regard to contagious diseases of horses, especially glanders.

Moved by Mr. Wilson, seconded by Mr. Lloyd, and carried, that the thanks of the meeting be presented to Professor Buckland, Commissioner of Agriculture, for his regular attendance, and the interest he has always taken in our meetings.

Moved by Mr. O'Neil, seconded by Mr. Wilson, that the sum of \$25.00 be appropriated for a gold medal to be competed for by the students of the Ontario Veterinary College at the next spring examination.

Mr. Elliot on vacating the Chair, made a few graceful remarks, and it was moved by Prof. Smith, seconded by Mr. Lloyd, and

carried, that a vote of thanks be presented to Mr. Elliott for his able conduct in the Chair during his two years occupancy of it, and for his strenuous exertions for the welfare of the Association and the profession at large.

And the meeting adjourned to meet again in August.

Condensed report of meeting for publication.

C. H. SWEETAPPLE,

Secretary and Register.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

PHILADELPHIA, PA., Feb. 2nd, 1884.

The regular monthly meeting of the Keystone Veterinary Medical Association was held on the above date, the President, Dr. Zuill, presiding.

The name of Dr. Jas. McCoart was proposed for membership, and laid upon the table; after which the President appointed a committee of two to examine into his credentials.

Under reports of cases, Dr. Miller cited one occurring in a road mare, the result of a kick on the anterior portion of the hock joint, producing an open joint at the lower portion of the articulation, from which escaped a discharge of pus and synovia: the lower portion of the limb was loose from suppuration of the tissues, and was held from the ground. The Doctor advised her destruction, but she being of considerable value, the owner desired to keep her for breeding purposes. A plaster of paris dressing was then adjusted, with window openings for the escape of discharge, and the mare placed in slings. After three weeks the wound was found to be healing, discharge ceasing, ankylosis taking place, and the animal bearing a certain amount of weight upon the limb, and giving every evidence of recovery.

Dr. Hoskins then brought up the point as to whether impressions upon animals, at the time of coition, might not be impressed upon the young: citing in this light a case where in a four-year-old colt there now existed a true hare lip, which was present when foaled: it allowed the upper incisors and gums to be exposed, and made the opening of one nostril appear very large. At the

time of coition the mare was very angry, and had to be severely twitched: citing another case where a mare, during intercourse with the male, had been twitched very strongly upon the ear, and her colt to this day carries a drooping ear.

Believing that such circumstances were given too little attention by veterinarians, he was opposed to some members, who contended that such things could hardly take place before conception had occurred.

Proceeding further, he pointed his hearers to the well known facts of the human family being oftentimes marked with birth-marks, from strong impressions being made upon the mother during pregnancy: alluding to fire marks, well defined mouse marks, a mortar and pestle in one case, where the father was a druggist, and believed that similar impressions might follow, from unnatural usages and surroundings during the act of copulation.

On motion the meeting adjourned.

W. HORACE HOSKINS, *Secretary*.

THE CONNECTICUT VETERINARY MEDICAL SOCIETY.

Subject to an invitation tendered by Dr. W. J. Sullivan to the veterinary surgeons of the State of Connecticut, a meeting was held at Jacob Diebel's restaurant, New Haven, on Wednesday afternoon, 13th inst., at which the following gentlemen were present: Messrs. W. J. Sullivan, H. J. McHugh, Nathan Tibbals, G. W. Whistler, New Haven; Andrew Murray, Stamford; W. K. Lewis, Meriden; E. A. McClellan, Bridgeport; Geo. H. Parkinson, Middletown, and Thos. Bland, Waterbury.

Dr. Sullivan read a letter which he had received from Dr. Liautard, suggesting the formation of a veterinary society in Connecticut, and said that his object in calling this meeting was to consolidate the veterinary surgeons of the State of Connecticut under the title of the Connecticut Veterinary Medical Society. The meeting was unanimous as to the desirability of such an association, and it was

Resolved, That this meeting form itself into a veterinary so-

ciety, and that it be known as the Connecticut Veterinary Medical Society.

The following gentlemen were elected officers for one year: President, W. J. Sullivan, New Haven; 1st Vice President, Andrew Murray, Stamford; 2nd Vice President, W. K. Lewis, Meriden; Recording Secretary, Thos. Bland, Waterbury; Corresponding Secretary, E. A. McClellan, Bridgeport; Treasurer, H. J. McHugh, New Haven; Chairman Board of Censors, Nathan Tibbals, New Haven.

The Constitution and By-Laws of the New York State Veterinary Society were read and adopted, with the exception of a few necessary alterations.

It was decided that the regular meetings should be held on the first Tuesday of every second month.

Doctors Sullivan and McHugh volunteered to read papers at the first regular meeting, which is to be held in Waterbury, on Tuesday, April 1st, 1884.

As several of the members were desirous of returning to their respective homes that evening, the meeting was brought to a close earlier than was wished, all expressing entire satisfaction with the proceedings, and promising to be on hand at the first regular meeting in April.

THOMAS BLAND, *Secretary*.

NEW JERSEY VETERINARY SOCIETY.

A meeting of the veterinarians of New Jersey, representing pretty much all parts of the State, met in Newark on Tuesday, February 5th, and organized a State Veterinary Medical Society. This is the only organization of the kind in that State. There is a wide field for it to operate in, and a great deal that is useful should come of it. Comparative medicine is making rapid advances in this country, and at no distant day is destined to take rank with the sister profession. When we look upon the immense live stock interests of America, and contemplate the losses that are liable to occur for the want of competent veterinary experience, the value of such an organization is made manifest.—*Turf, Field and Farm*.

REVIEW.

DISEASES AND INJURIES OF THE HORSE.

BY F. O. KIRBY.

Veterinary literature has received another contribution from a non-professional source. Undoubtedly it is the privilege of any one to write a book on the subject of veterinary medicine and surgery if he so chooses to do, but whether or not these productions by the laity, relating to a science abounding in such intricate and important questions as underlie the practice of medicine, do more good than harm is a matter for thoughtful consideration.

Intelligent compilations are often works of great value, but when a compilation is made by one unacquainted with the subject on which he writes, evidently the product must be of questionable merit. The author of the book in review disclaims any intention, in his preface, of presenting anything original, and seeks to justify his appearance in the domain of veterinary literature on the ground that he has incorporated in his compilation "many practical ideas, the result of sixteen years' experience in the ownership and consequent care of horses."

To praise the book is not possible; to severely criticise it may be done by quoting from its pages.

On page 60 laryngitis and pharyngitis are treated of as one disease under the head of sore throat. When speaking of the symptoms it is said: "There is generally a discharge from the nose, even in the earliest stages;" while on page 63, under "Signs of Recovery" the statement is made that, "the first sign of recovery is a slight mucous discharge from the nostrils."

On page 58 the definition of pneumonia is "inflammation of all the substance of the lungs." On page 69 the statement, "occasionally the animal dies (from congestion of the lungs) about the fourth or fifth day," is made regarding the course of pneumonia. Page 71 it is said that, "six to ten drops of the tincture of aconite may be added to a teacupful of water, and a teaspoonful given every fifteen minutes until perspiration occurs."

On page 84 indigestion, gastric impaction and grain founder are considered as one disease.

On page 85 it is recommended to throw a large injection into the rectum with a Rey's tube, which on page 20 is represented as a tube for injecting the nostrils.

On page 91 a dose for flatulent colic consists of solution of ammonia, 8 ozs.; oil of turpentine, 1 oz.; linseed oil, $\frac{1}{2}$ pint.

Page 92 Magendie's solution of opium (?) is recommended. Under the head of "Staggers," phrenitis, mad staggers, blind staggers, sleepy staggers, coma, stomach staggers, and brain fever, are given as synonyms, on page 103, and all are said to be "symptomatic of inflammation of the brain and its membranes."

On page 104 appears the following paragraph: "Sunstroke or the effect of powerful sun and heat, especially on an animal in a plethoric state, may bring on affection, usually comatose of the brain."

On page 107 another paragraph reads: "As topical relief, both in the comatose and also in the mad stages (if possible), cold wet clothes should be applied to the head, and a stream of cold water should be poured on them from above."

On page 112 the cause of tetanus is put down as "some abnormal condition of the nerves and their peripheral centres."

The dose of belladonna extract is given as four drams on page 114.

On page 121 a purge consists of sulphate of iron, 1 oz.; alois, 4 drams.

In speaking of the effects of neurotomy it is stated: "the usual result is that the hoof decays and falls off."

The temperature of acute glanders is put at from 106° to 109°

This work has been published by Wm. Wood & Co., in Wood's Library of Standard Medical Authors.

NOTICES.

Having received from the Secretary of the Michigan State Veterinary Medical Association an invitation to be present at the annual meeting of that body, and important engagements having prevented us from being present on that occasion, we hope Dr.

Dell, the Secretary, will favor us with a report of the proceedings of the meeting for publication.

To the members of the Alumni of the American Veterinary College :

Owing to a typographical error, the cards of invitation sent out by the Secretary, read Monday, March 4th, which should read Tuesday, March 4th.

W. HORACE HOSKINS, *Secretary*.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The regular semi-annual meeting of the United States Veterinary Medical Association will be held at Young's Hotel, Boston, March 18th, at ten o'clock in the morning. All are cordially invited to attend.

C. B. MICHENER, *Sec.*

CORRESPONDENCE.

QUALIFICATIONS REQUIRED FOR A VETERINARY SURGEON.

Editor American Veterinary Review :

DEAR SIR:—In the February number of the REVIEW is a report of the discussion of pleuro-pneumonia at the conference held in Brooklyn, L. I., January 9th, of this year, made by Mr. W. H. Pendry, and as he has misrepresented some statements made in connection with the questions put to me by the Commissioner, I beg leave to correct his errors :

He writes—"Dr. Plageman being asked by the Chairman for his views, said he had nothing to add to what had already been said." I am positive I stated, "I had very little to add," not "nothing to add;" and I have no recollection of saying any such words, as there were others present who had had far more experience with pleuro-pneumonia than I had, for I question now if pleuro-pneumonia does exist to the extent that it is reported; but I remember saying that I had experience with the disease in Eng-

land, and recommended the measures of Professor Law, that of "stamping out."

Mr. Pendry makes matters still worse on the next question : By the Chair—"What were the qualifications required for a veterinary surgeon?" and I said there were none. That I emphatically deny. The Chairman is a physician of repute in this city, and well adapted for the position he occupies, and deserves great credit for what he has accomplished as a sanitarian. He knows himself the requirements of a physician, and also those of a veterinary surgeon, and it would have been absurd for him to ask such a question. No such question was put, and if it was, I will answer it now.

I am doubtful if Mr. Pendry has many of the essential requirements. If he had, he would have been more careful in making a truthful report. Whether it is wilful or unintentional, I am unable to form an opinion, but it will give him an opportunity to correct his statements, and for the future be a little more just in his remarks, especially to his senior and more qualified veterinary surgeon.

While on this topic it would be as well to say a few words for the guidance of other members of the profession, and especially the junior ones. Let each and every one of them conduct themselves in a manner becoming an educated gentleman. I presume that is the first advice given to them at their introductory lecture, and instead of trying to disgrace the noble calling by their mean actions, let them make every effort to elevate it, and be strictly sociable and honest in all their dealings.

I have had ample opportunities to correct blunders made by veterinary surgeons just out of their pupilage, and others that have been years in practice, but because I am generous enough to overlook them (and no one can accuse me of either ridiculing their work in print or in practice, when I might have exposed them, either or both, by tongue and pen), it might be taken for granted that I have not noted their inefficiency, but please do not labor under any such delusion. I am certainly not infallible, nor do I pretend to be, but I expect when it is time to criticise, it should be done in a gentlemanly and friendly spirit, and not in the low, slurring manner which has hitherto been done.

I have at last taken up the defensive, and although I may be considered as making rather strong allusions, it is better to do so at once, and advise a cessation of ill-feeling and jealousy which has been harbored long enough.

I owe grudge to no one. I act independently. I am proud of my title of M.R.C.V.S., at which I have had several blows aimed, and if any gentleman can improve on it, either in the standing of the institution of which I am a member, or of my professional standing in this country, let him do so, and it will be to his credit; but do not be envious of my success, for which I have labored hard and well. I practised with a veterinary surgeon long before I entered college, which is more than a good many veterinary surgeons can boast of, and it is a pity it is not compulsory.

I will now close this appeal by stating that in justice to myself and my numerous friends, I have been compelled to lay before you the facts of this apparent maliciousness.

Trusting that for the future we will continue in a friendlier spirit, socially and professionally, I proffer any assistance willingly for the advancement of our profession.

Respectfully,

L. V. PLAGEMAN, M.R.C.V.S.,
Brooklyn, N. Y.

A SUGGESTION.

DETROIT, MICH., February 15, 1884.

Editor American Veterinary Review :

SIR:—I observe from the February number of the REVIEW that the convention which it was proposed to hold at Cincinnati is not to be carried out. The distance of Cincinnati appears to be an objection to some eastern veterinarians, but western veterinarians find the distance of Boston and New York an objection to their attending meetings which are held at those places. It is to be hoped, however, for the interest of the profession, that the difficulties which have arisen may be adjusted. It is clearly for the interest and advantage of the veterinary profession to have a *strong* National society, and it seems to me unnecessary

that all the members of such society should meet at a central point. Can such a body not elect representatives, whose functions would be similar to those of the Council of the Royal College of Veterinary Surgeons? Such a representative body might do work which would prove of great benefit to the profession at large. It is to be hoped, however, that the meeting which it was proposed to hold at Cincinnati is only postponed, and that a meeting will yet be held there which may lead to the formation of a strong National Society, and also to the adoption of means which may ultimately lead to the elevation and benefit of the profession.

Very respectfully,

A. J. MURRAY.

HOG CHOLERA VIRUS WANTED.

MR. EDITOR.—Should any of your exchanges make mention of the prevalence of "Hog Cholera," will you kindly favor me with a notice to that effect. I am specially desirous of obtaining a specimen of the virus of this disease as soon as possible. Could you find space to mention such a want in your journal? The virus (a dram or less) could be covered with alcohol to preserve, and expressed to your address. I will pay charges. As hog cholera (a misnomer) may be confounded with other diseases of swine, the virus should come from a reliable source.

You have so kindly given me what information I have asked for in the past that I am tempted to test your forbearance once more with the above request.

I remain under many obligations,

Yours very respectfully,

CHARLES F. RING.

LEGISLATION ON PLEURO-PNEUMONIA.

BROOKLYN, Feb. 19th, 1884.

Dr. A. Liautard:

DEAR SIR:—I to-day was favored by the Chairman of the Committee on Agriculture with a copy of the report just given to the House, and I thought some of the matter would interest the readers of the REVIEW; (I may be wrong—if I am, put it in the

waste paper basket) and so have given a few extracts from the report. It may, if none other good ensue, let foreign veterinarians see that we are alive to our weakness, and are trying to improve it.

Yours respectfully,

W. H. PENDRY.

The Committee on Agriculture, in their report, which they submitted to the House lately, touching the question of contagious pleuro-pneumonia, say they have "given the subject constant consideration and investigation for several weeks. They have personally examined experienced and scientific veterinary surgeons, stock-raisers, and large farmers familiar with the characteristic symptoms and treatment of the disease of pleuro-pneumonia, and have laborously and carefully examined all the written and printed information submitted or referred to the Committee bearing upon the subject."

In explanation of the bill submitted by the Committee they state briefly, "that sections 1 and 2 provide for the creation of a Bureau of Animal Industry in the Department of Agriculture, with ample authority and necessary force to collect information and to prescribe rules and regulations for the suppression and extirpation of pleuro-pneumonia and to provide against the spread of other contagious diseases."

"Sections 3 and 4 provide the plans and methods for the speedy and effectual suppression and extirpation of the disease known as pleuro-pneumonia, and the terms and conditions upon which the earnest and interested co-operation of the States is invited, and the penalty of quarantine by the President in case of their neglect or refusal to act."

"Sections 5 and 6 provide for the exportation of live-stock from the United States upon such terms and conditions as the Secretary of the Treasury may from time to time prescribe, with the view of removing the present restriction imposed by foreign Governments upon this important trade, and to prevent more stringent enactments by them in the near future, now imminent, unless prompt measures are taken to secure proper investigation and inspection of such cargoes, with such official certificates of condition as will not be questioned by any foreign Government."

“Sections 7 and 8 provide that the transportation from one State to another, of any live-stock affected by any contagious or infectious disease, and especially the disease known as pleuropneumonia, shall be a misdemeanor, punishable by fine or imprisonment.”

The Committee “deem it an essential condition in any attempt to prevent the spread of this disease, that the removal from one State to another of diseased animals should be declared a misdemeanor under the law, and punishable according to the aggravation of the offense. They have no doubt of its constitutionality, or of the propriety and present necessity of its enactment.”

“Section 9 confers upon the Commissioners of the District of Columbia ample power and authority to prevent the introduction or if found to exist within the limits thereof, to provide rules and regulations for its speedy and effectual extirpation.”

“Section 10 makes it the duty of the several United States District-Attorneys to prosecute all violations of this act which shall be brought to their notice or knowledge by any person making the complaint.”

In speaking of the restrictions placed by the English, French and German Governments upon the importations coming from the United States of live-stock, they say: “It is believed that if a veterinary division could be established under some part of the Government, with power to restrict the transportation of diseased animals, and those coming from and passing through infected districts, much might be done towards remedying the evil objected to.”

The question of inoculation is not touched upon, except as they add to their own report, that of Dr. D. E. Salmon, Veterinary Surgeon of the Department of Agriculture, who states: “As about 20 per cent. of all the animals exposed are able to resist the contagion indefinitely, a herd of comparatively unsusceptible cattle is in time acquired, and the time necessary for this is shortened both in Baltimore and Brooklyn by the practice of inoculation. But these stables and grounds remain infected, and a large proportion of the new cows brought into them contract the disease,

unless they are previously protected by inoculation. The practice of inoculation does not destroy the infection ; on the other hand it keeps it up, but it enables dairymen to keep their cows in infected stables without great loss, when without it more than half of the new cows brought into them would surely die."

CONTAGIOUS PLEURO-PNEUMONIA.

Editor Veterinary Review :

I had occasion lately to write to Prof. James Law, upon a matter, when in reply, he refers to my report of the conference held at Brooklyn, respecting the remedies that were necessary to prevent the spread of contagious pleuro-pneumonia, and I consider it only justice to that gentleman to give you that portion of his letter touching upon the subject.

Yours respectfully,

W. H. PENDRY, D.V.S.

CORNELL UNIVERSITY, ITHACA, N.Y., Feb. 13th, 1884.

Dr. Pendry :

DEAR SIR:—I am happy to say that you were correct in representing me as opposed to inoculation in this disease, if we can convince State or Federal Government to adopt effective measures for promptly stamping it out.

A short report such as that given is necessarily very imperfect and I could have wished you had grasped and presented some points more fully.

By way of example I would mention one point: "The disease bore a great resemblance in one respect to glanders in horses and to consumption in men and animals. Glanders and tuberculosis would not affect to the same extent as contagious pleuro-pneumonia and the lung disease, but that made the lung disease all the more dangerous because it was very liable to appear in a form not readily recognized."

My object was to draw attention to the fact that in all three diseases alike there were latent, occult or unrecognized forms which served to perpetuate and propagate the contagion even

though all visible sick animals were slaughtered. In glanders deposits in internal organs may remain dormant for years until called into more vigorous proliferation by some temporary exciting cause. The same is true of tuberculosis. In lung plague there are slight cases that fail to be recognized, there are dead encysted masses retained in the chest for long after the subject has apparently recovered, and there are local superficial infections (analogous to inoculation wounds) which occur without rousing a suspicion of their true nature. It follows that in all three diseases a continued supervision is wanted for a length of time (a year) after all apparent infection has been ended, nor should any beast dying from any cause in such suspected herd be exempted from a necropsy to show if any hidden deposits of the dreaded infection are to be found.

Inoculation is certainly an available resort when Government refuses all efficient measures for prompt stamping out; I am quite willing to accord it all that it deserves, but it is not the *best resort* for our present condition in the United States.

Faithfully yours,

JAMES LAW.

A BIRTHDAY PRESENT.

A very flattering and agreeable surprise was given to Prof. A. Liantard, of the American Veterinary College, on the occasion of his birthday, the 15th of February, by the presentation of a magnificent seal skin album, containing the photographs of the students forming the graduating class of 1884.

VETERINARY HONORS.

The greatest compliment ever paid to the veterinary profession has been presented to Mr. Henry Bouley, who was recently elected to the presidency of the highest court of Sciences of France—that of the Academie des Sciences, of Paris.

NEWS AND SUNDRIES.

HOG CHOLERA.—This disease is again raging in Champaign County, Illinois.

FOOT AND MOUTH DISEASE.—There are 36,000 cattle suffering from foot and mouth disease in Great Britain.

GLANDERS.—Glanders still exists among the Newark car horses. It is also reported from different parts of Illinois.

SELLING DISEASED MEAT.—A short time ago a farmer at Rochester, England, was fined \$115 for sending diseased sheep to market.—*Farmers' Review*.

NEW LIGATURES.—Horse-hair has been used of late in place of catgut ligatures. For drainage also it is unirritating and can be removed a hair at a time.

STRANGE CATTLE DISEASE.—A fatal disease is reported to have broken out among the cattle in the western part of Dallas County, Texas. Dr. Salmon has gone to investigate the disease.

DISEASE OF SHEEP.—What is called a sheep-epizootic has broken out in Montana. On one ranch having 12,000 sheep, 5,500 have died from this new disease. Particulars regarding the ailment are as yet very meagre.—*Farmer's Review*.

VIRCHOW ON AMERICAN PORK.—Professor Virchow has recently come out in favor of the American swine. He declares that there is no danger in it—that the shutting it out from Germany is a political, not a sanitary measure.—*Medical Record*.

BICHLORIDE AS AN ANTISEPTIC.—The combination of bichloride of mercury with chloride of sodium, which makes the antiseptic permanent, is now the one which is being used in our hospitals. This combination, we believe, was first suggested by C. Amend, a chemist of this city.—*Medical Record*.

SUPPRESSION OF CATTLE DISEASES.—The Home Minister of Holland has asked for \$100,000 to expend in efforts to rid the country of contagious cattle diseases, especially pleuro-pneu-

monia. It is believed that the parliament will grant double the sum, though the financial condition of the Government is somewhat straitened. We need not look for the importation of more Dutch cattle for some time.—*Prairie Farmer*.

CHLORAL AS A PURGATIVE.—Writing in the "*Gazzetta Medica Italiana, Provincie Venete*," Dr. Bonatti speaks highly of the use of hydrate of chloral as a purgative in cases of obstinate constipation in insane persons, after jalap, croton oil and other drastic cathartics have been used without avail. He gives the chloral in doses of two or three grammes (thirty to forty-five grains), dissolved in a draught of infusion of senna. It is said to act rapidly.—*New York Medical Journal*.

TUBERCLE BACILLUS NOTES.—Kussner has found that by injecting tuberculous sputa into the trachea of dogs and rabbits, tuberculosis was produced; the injection of non-tuberculous sputa does not do this.

Weichselbaum, of Vienna, has published a criticism of Spina's work and a defence of Koch's conclusions.

Dr Koch publishes, in the *Deutsche Medicinische Wochenschrift*, an elaborate review of the criticisms made upon the bacillus of tuberculosis and defends his original views as to its nature, retracting nothing. He brings forward no new experimental evidence. The prophylactic importance of the discovery is enlarged upon.—*Medical Record*.

BIRTHMARK ON A COLT.—A medical journal of recent date says: "In a certain farming community of southern Ohio it was the custom of the neighborhood for farmers to render assistance to each other in threshing time, sometimes using the same set of horses for six weeks or two months, or until the grain in that neighborhood was threshed. A favorite mare thus used, three to four months with foal, while feeding one day, was startled by an unexpected noise which caused her to throw up her head with great violence against the sharp edge of a squared beam, thereby cutting an ugly gash across the forehead just above the eyes. In due time the colt appeared, having an ugly looking scar corresponding in situation to the injury on the dam, and was totally

blind from cataract of both eyes, but otherwise healthy and well formed. It was kept in a field of six or seven acres, and with intervals of rest, would continually travel in a circuit corresponding in diameter exactly to the circuit travelled over by the mare while hitched to the machine. It was permitted to live some six months, making its ceaseless rounds night and day, when mercy put an end to its miserable existence."—*Turf, Field, and Farm*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinary Journal, Veterinarian, Clinica Veterinaria, Presse Vétérinaire, Revue Scientifique, Gazette Médicale, Revue Dosimétrique, Annales de Bruxelles, Revue d'Hygiène, Journal de Zootechnie, Archives Veterinaries, Revue für Thierheilkunde und Thierzucht, Schweizer-Archiv für Thierheilkunde, (Zurich,) Echo Veterinaire, Tidsskrift für Veterinärer.

HOME.—Medical Record, Druggists Circular, Rural New Yorker, American Agriculturist, Country Gentleman, Breeders' Gazette, Live Stock Journal, Spirit of the Times, Turf, Field and Farm, Scientific American, Prairie Farmer, Maine Farmer.

JOURNALS.—Ohio Farmer, Home Farm, Medical Herald, Journal of Agriculture, Portland Daily Press, Portland Sunday Times, Boston Morning Journal.

COMMUNICATIONS.—A. A. Holcombe, C. B. Miehener, W. H. Pendry, Geo. H. Bailey, D. Salmon, W. H. Hoskins, W. R. Howe, S. Walton, J. A. Dell.

BOOKS AND PAMPHLETS.—Hygiène and Inspection de la Volaille, by Theo. Bourriser. Le Chien, by P. Megnin. La fièvre typhoïde chez le cheval et chez l'homme, by Dr. Servoles. Annual Report of the Board of Health of N. J.

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